

Angkor Wat towers and purpose.

Alexander Abramov.

Moscow

2025

Contents

	Page
1. Preface	2
2. Brief description of the Angkor Wat temple.....	3
3. Is Angkor Wat a Funerary Temple?	9
4. King Suryavarman II	10
5. The Architect of Angkor Wat	12
6. Hindu temple.....	13
7. Prasat Hin Phimai.....	14
8. Vedic Cosmology.....	17
9. Is Angkor Wat the mount Meru?.....	17
10. The temple is a living entity.....	19
11. Consecration of the Temple.....	20
12. Vastu Purusha Mandala.....	22
13. Numerical regularities in Angkor Wat.....	24
14. The pattern of the tiers of the upper level Angkor Wat towers.....	26
15. Curved form of Shikhara.....	32
16. Longitudinal hole in the capstone.....	36
17. The purposes of building Angkor Wat.....	39
18. Conclusion.....	42
19. Abbreviations.....	42
20. Bibliography.....	43
21. About the author.....	44

1. Preface

This work has aims to draw attention to some patterns in the construction of towers and the layout of the temple, which can help to get closer to understanding the goals of the construction of Angkor Wat and its purpose. The article is designed, in general, for an unprepared reader and therefore begins with a description of Angkor Wat in general and an explanation of the main basic concepts of Hinduism, Vedic cosmology, and the Vastu Purusha mandala. The reader who knows all this and is bored reading all this is invited to skip to the section 13.

Taking this opportunity, I would like to express my respect to the outstanding researchers of the past such as Jean Commaille¹, Henri Marchal², Maurice Glaize³, Georges Coedès⁴, Henri Parmentier⁵, Georges and Bernard Philippe Groslier⁶, Victor Goulubev⁷ without their titanic work we would not see the Khmer temples as we see now and would not know as much about the Khmer culture, religion and life of ancient Angkor time as we know now. This work has aims a attempt to close to understanding the principles of construction and to draw attention to some identified regularities that may help to understand the goals and purpose of Angkor Wat as a whole.

Photos and drawings without additional information about origin were made by the author of this article.

¹ Jean Commaille (24 June 1868, Marseilles — 30 Apr. 1916, Siem Reap) former as an enlisted private of the Foreign Legion in South East Asia was been the First Conservateur (Curator) EFEO of Angkor from July 1908. He began excavations of Angkor Wat, Bayon, the Royal Terraces, Preah Pithu, Baphuon, Prasat Suor Prat. Jean Commaille was murdered by bandits when carried a payroll to his workers at April 29, 1916. His was buried near the Bayon.

² Henri Marchal (June 24, 1876 – April 10, 1970) French architect became second Conservateur (Curator) EFEO of Angkor after the murder of Jean Commaille in 1916. He continued the clearing of Angkor Wat and the excavation of Baphuon, the Bayon, Phimeanakas, Preah Pithu, the Royal Palace. He was the first to apply the anastylosis method to the restoration of Banteay Srei Temple. He devoted a great part of his life to Angkor. He died in 1970 at the age of 93 in Siem Reap. According to Khmer custom he was cremated and his ashes were scattered over Angkor.

³ Maurice Glaize (26 Dec. 1886, Paris – 17 July 1964, La Rochelle) a French architect and archeologist became fourth Conservator of Angkor from 1937 to 1945 after Georges Trouve tragic death. Restored Neak Pean, West Mebon tempels. Wrote a book "Les Monuments du groupe d'Angkor".

⁴ George Coedès (10 August 1886 – 2 October 1969) a French scholar, archaeologist and historian of Southeast Asia. He translated a large number of Sanskrit and ancient Khmer inscriptions from Cambodia. His 8-volume work "Inscriptions du Cambodge" (1937–1966) contains editions and translations of more than a thousand inscriptions from pre-Angkorian and Angkorian sites and is Coedès's main opus.

⁵ Henri Ernest Jean Parmentier (3 January 1871 – 22 February 1949) was a French architect, art historian, and archaeologist. In 1904 Parmentier became a head of the archaeological department of the École and remained in this position until 1932. Parmentier studied and conserved temples in Cambodia in Serei Saophoan, Battambang Province, Siem Reap Province, Angkor, in South of Vietnam and Lao.

⁶ George Groslier (February 4, 1887 – June 18, 1945) was a French polymath, writer, historian, archaeologist, ethnologist, architect, photographer – studied, described, popularized and worked to preserve the arts, culture and history of the Khmer Empire of Cambodia. He was shoot by the Japanese invaders on charges of spying because of a radio receiver be found.

Bernard-Philippe Groslier (May 10, 1926 in Phnom Penh, Cambodia - May 29, 1986 in Paris) was a French archaeologist , specialist in Khmer art and director of research at the CNRS . Son of Georges Groslier . Bernard-Philippe Groslier was been a director of art and curator of the National Museum of Cambodia, succeeding his father created this museum in 1918 and curator of Angkor.

⁷ Viktor Goulubev (12 February 1878, Saint Petersburg– 19 April 1945, Hanoi) – orientalist, archaeologist and art historian. From 1920 until his death he worked at the EFEO. Viktor Golubev published more than 150 works on the Buddhist art of Asia, pre-Aryan and pre-Buddhist art of India, art and archaeology of Indochina and neighboring countries. A recognized specialist in the history of Buddhist and secular art of India and the Far East. Together with Louis Finot and Henri Parmentier he studied the symbolism of the Neak Pean temple dedicated to Lokeshvara. He took aerial photographs of Preh Khan Kampong Svay.

2. Brief description of the Angkor Wat temple.



Angkor Wat is the largest monument of the Angkor group built during the reign of king Suryavarman II to the south of the capital (Angkor Thom (see fig. 1)). The start date of the temple construction varies from 1116 CE to 1122 CE and continued until the death of Suryavarman II in 1150.

Angkor Wat is located in the southeast corner of the ancient city of Angkor - Yashodharapura built by *Yasovarman I*⁸ centered on Phnom Bakheng and extending between the Siem Reap River to the east and the baray to the west.

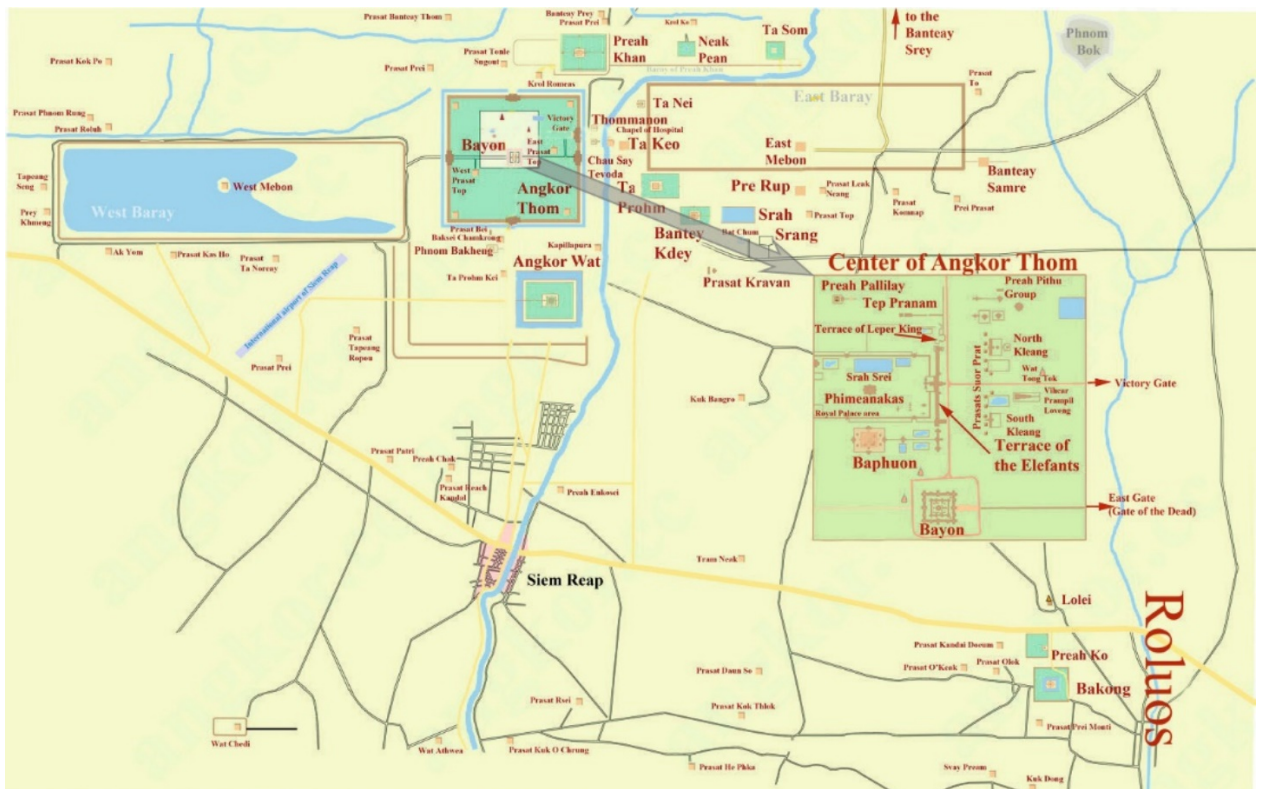


Fig. 1 Map of Angkor

⁸ Yasovarman I - King of Angkor, reign 889-915 CE.

Angkor Wat is representing oneself a rectangle measuring approximately 1,500 to 1,300 meters including a 190 wide meter moat and covers an area of almost 200 hectares. On this rectangular "island" stands the Angkor Wat complex consisting of four rectangular walled spaces which in the future will be called "enclosures".

Access to Angkor Wat is via a bridge on the western side with a descents to the water in the middle of its path on both sides. Angkor Wat can be entered either by this bridge or by an earthen rampart from the east.

The outer or fourth enclosure is a rectangle formed by a wall of 4.5 meters high and measuring 1,024 meters from east to west to 802 meters from north to south and consist 82 hectares . The enclosing wall retreat from the moat to 30 meters and has *gopuras*⁹ for passage on four sides in the cardinal directions. The western entrance and gopura is the main one. A paved road with six descents to the ground with two *libraries*¹⁰ and two *barays*¹¹ on the sides along the way leads to the next enclosure.

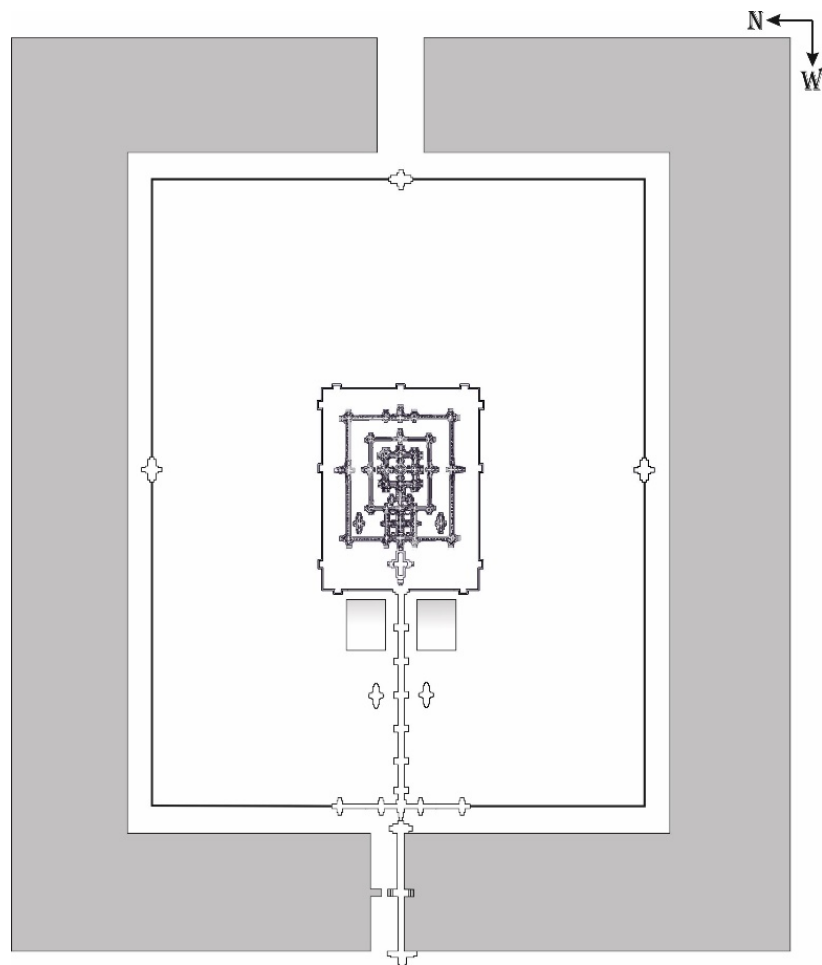


Fig .2

The temple stands on a fenced by balustrade platform measuring 330 m by 255 m the same level as the pavement leading to it rising at 3.3 m and turning into a cruciform terrace with naga balustrades before the entrance to the third enclosure. The third enclosure stands at the same level as the cruciform terrace

⁹ Gopura - the entrance gate through enclosure of Hindu temple designed as a building with a tower and in most cases with side rooms.

¹⁰ Library - that began to call small elongated buildings with windows usually closed with balusters with entrances on the cardinal points. It was assumed that scrolls were kept there - hence appeared the name.

¹¹ Baray - an artificial reservoir, a pond

and measures 208 m from east to west and 175 m from north to south. The gallery that forms this enclosure is notable for its bas-reliefs on the outside.



Fig. 3 The *Battle on Kurukshetra* ¹²field bas-relief is on the western gallery at the southern side.



Fig .4 The bas-relief of Battle on Lanka is on the northern side of western gallery. This is a scene from the Ramayana - a plot from the ancient Indian epic Ramayana: *Rama*¹³ with his brother Lakshman and helping of an army of vamanas (monkeys) led by Hanuman free Rama's wife *Sita*¹⁴ was kidnapped by the demon king Ravana and held on the island of Lanka.

¹² The Battle on Kurukshetra field: a story from the ancient Indian epic Mahabharata: the battle took place 3100 BCE between the armies of the cousins Kauravas and Pandavas, which, according to the plan of Krishna (the twentieth incarnation of the Supreme Personality of God. SB 1.3.23 [5]) was to free the Earth from the overly powerful clans that were burdening it. Before the battle, Krishna told his closest friend Arjuna the Bhagavad Gita - the most inmost knowledge of Hinduism. This battle marks the end of the Dvapara yuga (era) and the beginning of the Kali yuga (more on p. 17), which continues to this day.

¹³ Rama: the eighteenth incarnation of the Supreme Personality of God (SB 1.3.22)[5], in the ancient Indian epic Ramayana a perfect king who was an example of strict adherence to the principles of dharma (duty) and the dignity of marriage.

¹⁴ Sita is the wife of Rama, in the ancient Indian epic Ramayana the incarnation of the goddess Lakshmi - the wife of Vishnu.



Fig. 5 The bas-relief of the *Battle of Devas (demigods) with Asuras (demons)* ¹⁵ is on the western part of the northern gallery.

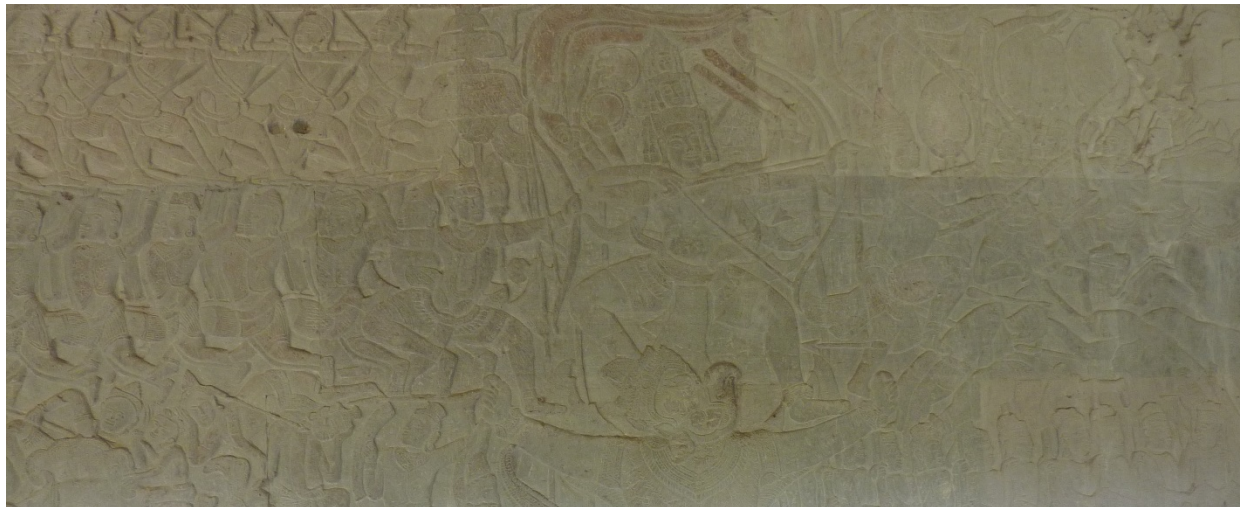


Рис. 6 The bas-relief of *Krishna's Victory over the asura Bana* ¹⁶ is on the eastern part of the northern gallery.

¹⁵ See footnote #17 on page 8

¹⁶ Krishna's Victory over the Asura Bana - Aniruddha - the son of Pradyumna (grandson of Krishna) was kidnapped by the Asura Bana. He was kept in Shonitapura, the capital of the Asura Bana, which had a wall of fire instead of a fortification. Sri Krishna had killed all the spirits and ghosts serving Bana. Then Krishna cut off all Bana's hands except four ones and agreed to spare Bana's life in response to Shiva's prayers. (SB 10.63)[5]



Fig. 7 The bas-relief of Vishnu's Victory over the Asuras is on the northern part of the eastern gallery.



Fig. 8 The bas-relief of *Churning of the Milky Ocean*¹⁷ is on the southern side of the eastern gallery.

¹⁷ Churning of the Milk Ocean - after quarrel between the king of the demigods (devas) Indra and the sage Durvasa the last one cursed Indra depriving him of power and luck. The asuras (demons) taking advantage of the weakness of the devas began a battle with the devas winning it under the leadership of the king of the asuras Bali. The devas asked to Vishnu for help who decided to reconcile the devas and asuras by churning the milk ocean together in order to obtain the elixir of immortality - amrita. Mount Mandara was used as a churner and the snake Vasuki was used as a rope. When Mount Mandara began to sink Vishnu incarnated as the turtle Kurma holding the mountain on his back. Vishnu himself in his main avatar at the same time held the top of Mount Mandara preventing it from falling. SB8.8 [5]



Fig. 9 The bas-relief Heavens and Hells with the Court of the god of death Yama is on the eastern part of the southern gallery



Fig. 10 The bas-relief of the Royal procession of Suryavarman II with his officials is on the western side of the southern gallery.

Inside the third enclosure is Crusiform Galleries or as it sometime calling "Hall of the *Apsaras*¹⁸" and two libraries. The Crusiform Galleries adjoins to gopura of the second enclosure. The second enclosure with towers at each corner has measures 120 meters from east to west by 98 meters from north to south and raised to 5.8 meters above the level of the third enclosure.



Fig. 11 Apsaras of Angkor Wat

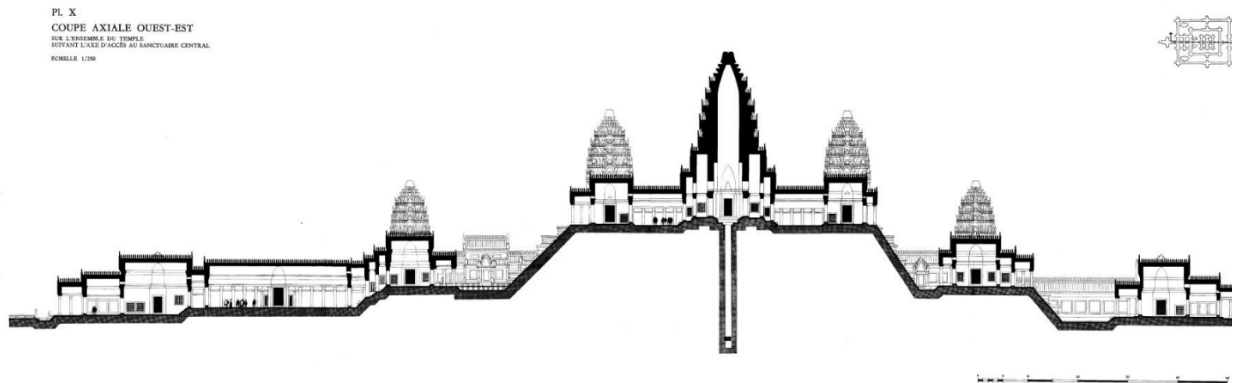


Fig. 12 Drawing by Henri Parmentier. Taken from <https://www.behance.net/gallery/4296699/Angkor-Wat-Architectural-Drawings-Orthophotos>

The fourth, central enclosure has measures 52 by 52 meters with towers at each corner and a central sanctuary tower in the center is 65 meters above ground level. The fourth enclosure level is 26 meters above ground level. There is a shaft in the center of the central sanctuary that goes down to ground level.

3. Is Angkor Wat a Funerary Temple?

The main entrance of almost all Khmer temples is on their eastern side. Angkor Wat faces west and thus represents an exception of temples orientation main rule to the east.

Early researchers, including Maurice Glaize, assumed with a high degree of sureness that the direction of the temple was related to its purpose. Research by George Coedes and Dr. Bosch, head of the Netherlands Archaeological Survey has shown that Angkor Wat is a funerary temple built during the lifetime of it's founding king Suryavarman II for his consecration and probably also as a depository for his ashes. According to Dr. Bosch, this westward orientation is typical of Indo-Javanese funerary monuments and opposite of the orientation of sanctuaries dedicated to deities. The rite of the Brahmanic funerary ritual is performed in the direction opposite to the course of the sun as in the bas-

¹⁸ Apsaras - are celestial dancers appeared during the Churning of the Ocean of Milk, see footnote #17 on page 7. Angkor Wat is famous for its more than 2,000 apsara bas-reliefs on the walls and columns (Fig. 11).

relief at Angkor Wat depicting the Royal procession of Suryavarman II (Fig. 10). The ritual procession is not performed in the usual direction follows to sun ("pradakshina"), in that case the temple occurs on the right but in the opposite direction - "prasavya".

Moreover according to the Cambodian legend of Prah Ket, Angkor Wat was a palace identical to the "heaven of the Thirty-three" built by the celestial architect Vishvakarman on the orders of Indra for a prince whom by god sent back to the Earth to live a second time. According to the interpretation of George Coedes that means that Angkor Wat was built to serve as the palace of a deceased ruler who was posthumously deified. Although it can be interpreted as a palace for a ruler who returned to Earth in a divine form after death.

Besides there is no archaeological information about the burial of the dead at classical Angkor. Only at 1963 that Georges Groslier (footnote #6 pg.2) discovered a rectangular burial site on the western side of Sra Srang (fig. 1) that was founded in the mid-eleventh century and used until the fifteenth. In accordance with Hindu and Buddhist practice all the dead were cremated and the ashes placed in large urns, which were surrounded by offerings, small porcelain dishes, Khmer ceramic jars, including elephant-shaped ones, weapons and tools, lead ingots, terracotta Hindu plaques and bronze Buddha statues. Such burials were established for persons of high rank that could be identified by bronze mirrors, as well as a pair of bronze hooks and two decorative rings from palanquin poles[21]. But nowhere were temples built to store ashes in Angkor as chedis would later be built in Siam in accordance with the Theravada Buddhism tradition.

George Coedes also revealed the connection of Vishnu with the western direction and quite naturally Suryavarman II planning Angkor Wat as a Vaishnavas temple and identifying himself no longer with Shiva in the form of the royal lingam like his predecessors but dedicating the temple and himself to Vishnu should have adopted this new orientation of the temple without making Angkor Wat a funerary temple.

4. King Suryavarman II

Genealogy of Suryavarman II can be traced from his great-grandfather Hiranyavarman (Protected by Brahma) founded a dynasty that took control of Cambodia in 1080 and produced two of the most famous rulers in Khmer history: Suryavarman II and Jayavarman VII. An engraved inscription found in northeastern Thailand at Phnom Rung translated by Georges Coedes praises Hiranyavarman as a descendant of Aditya and Lakshmi - the consort of Vishnu. Therefore can be assumed that his family was from this region.

The ending of his name "varman" meaning "protected" indicates descent from the Pallava dynasty that existed from 275 CE to 897 CE on the east coast of southern India on the modern states territory of Andhra Pradesh and Tamil Nadu. The Pallava Empire became a major South Indian power during 600–668 CE and was known for its Hindu Vaishnava temple architecture. One of temples that architecture was the Shore Temple at Mamallapuram. The Pallava dynasty laid the foundations of medieval South Indian architecture and also developed a script that later gave rise to many Southeast Asian scripts including Khmer. [19] Father of Suryavarman II was Kshitindraditya and his mother Narendralakshmi. As their names indicate the both were descendants of Hiranyavarman who was their common grandfather. According to the Phnom Rung inscription, Hiranyavarman's queen Hiranyalakshmi bore him three sons and a daughter. The youngest son Sri Yuvaraja ("Royal Heir") died before he could ascend the throne. His wife Sri Vijayendralakshmi then married the middle of three brothers, the first ruling king in the family, Jayavarman VI (c. 1080–1107). When Jayavarman died nearly three decades later in 1107, his eldest brother Dharanindravarman I (c. 1107–1113) took the throne unwillingly: "Not wanting royal power

when his younger brother returned to heaven, out of simple compassion and yielding to the supplications of the multitude without a protector, [he | ruled the land with caution. "

In addition to Dharanindravarman, other contenders for the throne included Ksitindraditya - Suryavarman's father - like Dharanindravarman he was a descendant of Hiranyavarman but from another queen - and Mahidharaditya - Dharanindravarman's maternal uncle. By unknown reasons, perhaps due to respect in one case and old age in the other - neither of these men challenged Dharanindravarman for the throne.

Instead that after 6 years the young Suryavarman, Ksitindraditya's son, challenged his aged great-uncle in battle and "leaped upon the elephant of the enemy king and killed him... as Garuda landing on a mountaintop kills a serpent." Or as an inscription written during the reign of Jayavarman VII states: "After a battle that lasted only one day, Sri Suryavarman deprived the defenseless kingship of Sri Dharanindravarman." Another inscription dated 1128 says that Suryavarman "fulfilled the wish of the royal dignity of his family while still dependent on two masters like nectar in *Rahu*¹⁹," i.e. at the end of his teaching. Since Khmer inscriptions rarely mention the age of a king in any context the reference to Suryavarman's youth in this 1128 inscription is highly unusual. The end of his teaching could have occurred as early as the age of 16. His youth explains why he did not challenge Dharanindravarman for the throne when he came to power six years earlier.

Suryavarman was enthroned in 1113 CE. The spiritual teacher brahmin Divakarapandita carried out the ceremony. Engraved inscriptions indicate that the new monarch studied sacred rituals, celebrated religious festivals and presented gifts to the priest such as palanquins, fans, crowns, pots and rings. The king's formal coronation took place in 1119 CE with presiding of Divakarapandita again over the rites.

Suryavarman II was a "*devaraja*" for the people of his country, i.e. a divine ruler or the viceroy of God on Earth. Deva means a god or demigod on Sanskrit and raja is ruler. The devaraja cult was introduced by Jayavarman II ascended the throne in 802 CE when he moved the capital of Angkor to Roluos (at right bottom angle on Map of Angkor fig. 1) from Phnom Kulen. The divinity of the ruler was supported, according to the recordings of Zhou Daguan, a Chinese diplomat visited Angkor in the 13th century, by the belief that the ruler must to sleep every night with a seven-headed naga-woman in the palace looking like a golden mountain. This golden palace was the Phimeanakas temple in Angkor Thom (fig.1). If the king did not appear at least for one night to the naga woman the terrible disasters awaited the country.

The years during which Suryavarman built Angkor Wat (c. 1116–1150) and other temples were far from peaceful. Suryavarman fought much with the Dai Viet the area is northern Vietnam now and later with the Cham (now in central Vietnam) in the early years of his reign . These last battles were generally unsuccessful due to the growing power of the Cham.

Besides of Angkor Wat the works on Banteay Samre and more smaller temples such as Thommanon and Chau Say Tewoda were begun during the reign of King Suryavarman II. The temple of Beng Mealea with some of the architecture elements of Angkor Wat is about 50 km east of Angkor was also begun during the reign of Suryavarman II.

¹⁹ Rahu is one of the asuras (demons) who after Vishnu's decision to give the amrita obtained from the Churning of the Ocean of Milk to the devas (demigods) (see footnote #17 on page 7), decided stealthily to drink the amrita (nectar). When Vishnu saw this he cut off Rahu's head but one drop of amrita touched Rahu's throat making his head alive without a body. Rahu is also the deity of the northern lunar node (see footnote #24 on page 23) in Jyotish - Vedic astrology.

There is no written evidence that King Suryavarman had children or whether he had any brothers or sisters. He took a second queen when the first apparently died.

The assumption that Suryavarman II died around 1150 at Angkor is due to the fact that records of Suryavarman II ending in that year. The throne was succeeded by his cousin Dharanindravarman II. [1]

The devaraja cult helped to kings of the Hindu faith to maintain power and order in the country while the Buddhist religion of Mahayana tradition came later did not deify the rulers and perhaps may course one of the aspects of the fall of Angkor along with economic and political reasons.

5. The Architect of Angkor Wat

Angkor Wat remains a historical mystery because that none of the engraved inscriptions mention the temple. It is truly strange that one of the most magnificent buildings in Khmer history did not deserve to be mentioned on stone steles. It can be assumed, of course, that the inscriptions mentioned Angkor Wat simply did not survive. Whatever the reason the real name of the temple or its main architect is unknown. Despite this the engraved inscriptions surviving in other temples to find out who they might have been. No royal priest has earned such attention in the surviving inscriptions as Divakarapandita. This name consists of two parts: the first is the actual name - Divakara, the second is the Sanskrit word "pandita" पण्डित meaning "scholar having attained true understanding of the scriptures ". Eleanor Mannikka in her book *Angkor Wat_ Time, Space, and Kingship* (1996) [1] gives part of his biography.

Divakara was the grandson of the Indian Brahmin Sri one of the chief priests of King Suryavarman I (r. c. 1002–1050). In fact, Divakarapandita was the chief spiritual teacher and the most respected and senior priest at the beginning of the reign of Suryavarman II. It is quite possible that Divakara was a genius and designed Angkor Wat temple.

Divakara was the Vrah Guru or chief priest during the reigns of two royal predecessors of Suryavarman II and crowned the first three kings in that family. It is known that he was born at Wnur Dan in the Sakya region - both places are currently unknown. It is not known exactly when he was born but he was already mature enough in all respects to assist in the consecration rites of the main statue at Baphuon (fig. 1) - the state temple of Angkor built during the reign of Udayadityavarman I (r. 1050–66). According this information can be assumed that Divakara was born around 1050. He got the special title of "dhuli jen kamrateng an" in 1119 or 1120 and was therefore was alive and serving at that time. The statue of Divakara was erected at Wat Phou in 1136 that may indicate of his death. These poor references to events and dates suggest that his life must have lasted at least 80 years.

Divakarapandita's priestly lineage can be traced back from the very beginnings of Angkor in the early ninth century making him the family priest with the longest career and a good reputation and position. During the reign of Harshavarman II (r. 1066–80), Divakara received the title of "acharya pradhana" or "chief spiritual teacher." He performed the coronation ceremony of Jayavarman VI in 1080 and was elevated to the title of "bhagavat pada kamrateng an ta guru" or "Lord Master Guru." Since Jayavarman VI's accession was not direct with the previous king—he came from a different family—Divakara appears to have chosen to remain with the new Khmer ruler rather than with the family that had fallen from power. It is also possible that he may have been allowed to continue in his official position regardless of the identity of the new ruler as the priestly castes had a great deal of autonomy. In any case Divakara should travelled with Jayavarman VI when the king made pilgrimages to sacred sites and he donated considerable wealth to many temples during the reigns of all three kings of this royal line. He is also

known to have presided over annual ritual sacrifices. During the reign of King Suryavarman II at one point he convinced the king to return lost territories to a group of priests.

He was rewarded with honors and property the most impressive of which was been the Banteay Srei temple.

It is impossible to know now exactly about of role Divakara played in the construction of the temple but it is difficult to imagine that anyone more closely involved in the design and subsequent construction and dedication of Angkor Wat than Divakarapandita at the height of his career and knowledges.[1]

6. Hindu temple.

Hindu temples consist of certain elements and rooms.

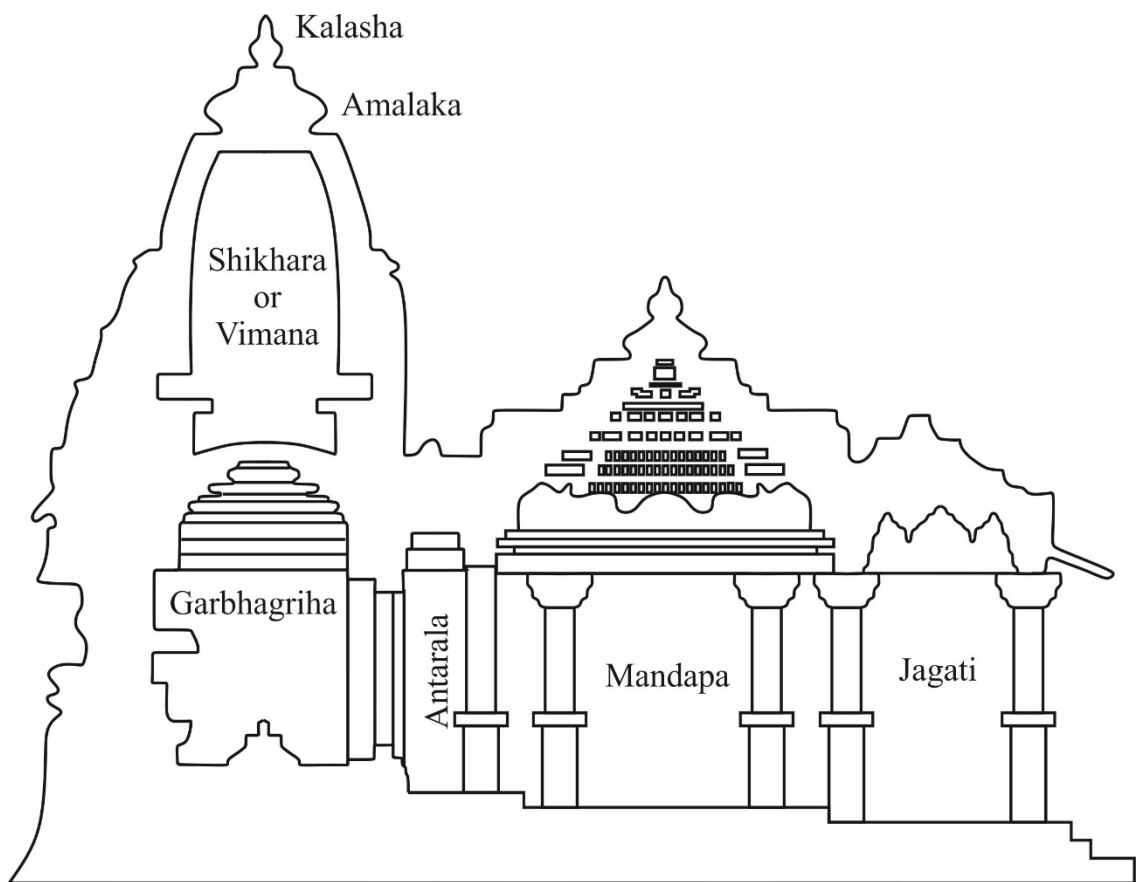


Fig. 13 Hindu temple

The main room - the holy of holies — the central sanctuary "**garbhagriha**" — verbatim “the womb of the temple”, a small inner sanctum with its generally square in the plan where there is the altar with the main murti (image of the deity) of the temple. A tower-shaped round **shikhara** is built above the sanctum (in the south of India or as in the case of Angkor Wat — a tiered **vimana**). **Kalasha** is the drop-shaped top of the shikhara. Near to the sanctum is the **antarala** — a vestibule between the sanctum and the **mandapa** — a hall for meditation and reading sacred texts. **Jagati** — the rise of the temple platform above the base (adhishthana).

Khmer temples usually did not follow this scheme. Until the first half of the 10th century temples evolved from a single sanctuary such as temples of Roluos and Koh Ker to several sanctuaries united by a common architectural design such as Prasat Kravan, Lolei or Preah Ko (see Map of Angkor fig. 1). These sanctuaries were not connected to each other by passages. Temples such as Bakong and Pre Rup began to incorporate a multi-level pyramidal base to become a temple-mountain, symbolizing Mount Meru.

The mandapa appeared only in the second half of the 10th century at Banteay Srei and Prasat Hin Phimai which now in Thailand fully corresponds to the scheme of a classical Hindu temple.

7. Prasat Hin Phimai



Fig. 14

The majestic Khmer temple of Phimai from the late eleventh to early twelfth century locally known as Prasat Hin Phimai is located in the center of the Phimai Historical Park one of the important historical sites in northeastern Thailand at 61 km from Nakhon Ratchasima in the Phimai district and 365 km from Bangkok.

The Phimai temple was located on the territory of the Khmer Empire during its construction and was originally created as a Hindu temple but since the reign of Jayavarman VII used as a Buddhist temple.

Unlike other temples with the main entrance to the east this temple is built with the main entrance to the south and with the axis of the temple shifted by 20.7 degrees to the northeast (Fig. 15).

Scholars believe that the construction of the main shrine was begun during the reign of King Suryavarman I ruled the Khmer Empire from 1002 to 1050 and completed during the reign of King Jayavarman I ruled from 1181 to 1220.

There is an inscription in the gopura of the enclosure engraved in Khmer which says that in 1030 *the Saka (=1109 author's note) Kamrathen An Sri Virendrihipativarman of the county of Chok Vakula installed an image of the god Trailokyavijaya the general (senapati) of the god Viraya and donated slaves and lands to the temple. In 1031 of Saka the grandee K. A. Sri Viravarma gave slaves to the god Trailokyavijaya. The fruits of all these pious deeds are offered to His Majesty Sri Dharanindra-varmadeva. In 1084 of Saka Teh Twan Prasan son of Kamrathe An Sri Virendra Adhipativarman of Chok Vakula made a gift of slaves (or slave girls) to the god Vimaya.* The inscription is very important. Georges Coedes translated this inscription was able to identify the author of the inscription with Virendra Adhipativarman who is

depicted in the retinue of king Suryavarman II on the bas-relief of the Royal procession in Angkor Wat (p. 8 fig. 10).

This engraved inscription indicates that during the reign of Suryavarman II the Phimai Hin temple was revered and visited by dignitaries at the highest level.

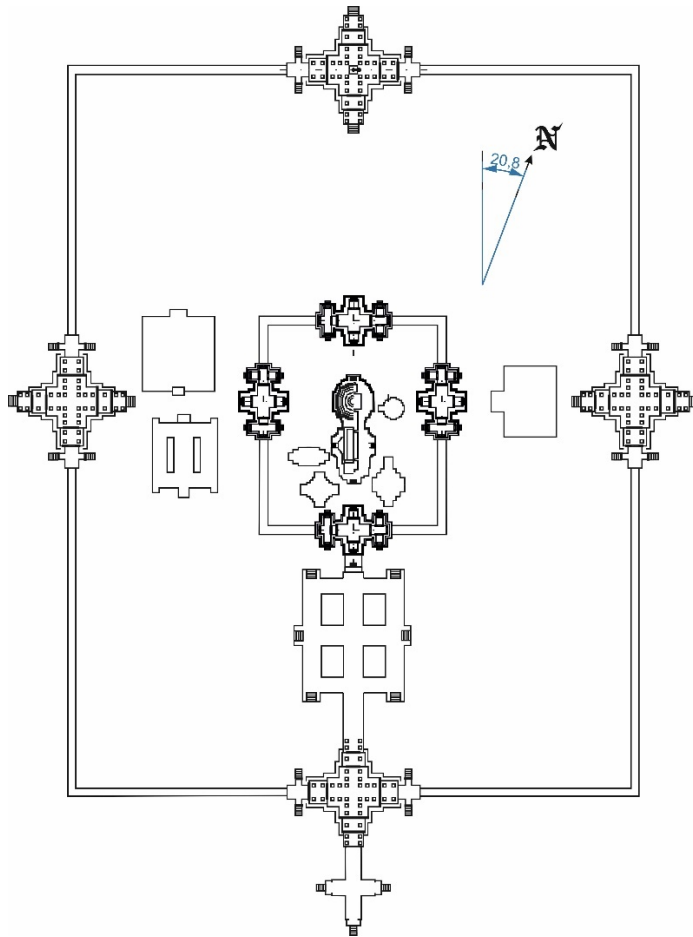


Fig. 15 Phimai Hin Plan

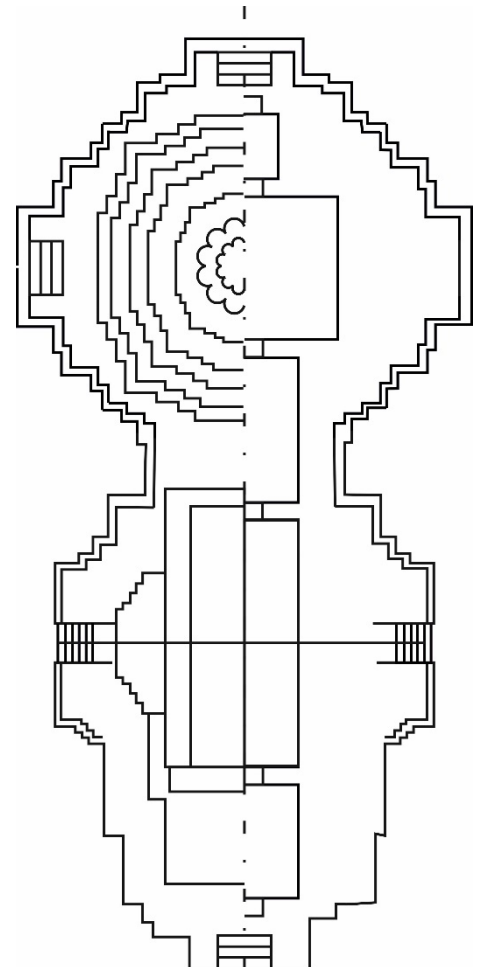


Fig. 16 Phimai Hin Prasat Plan



Fig. 17 View of the Naga Balustrade of Phimai Hin

As you can see the Phimai Hin temple corresponds to the classical Hindu temple layout with a mandapa and antarala (Fig. 16). It is also clear that this temple is a prototype of Angkor Wat with enclosures with gopurams and with the remaining foundation of a cross-shaped building in front of the inner first enclosure. This building would correspond to the Crusiform Galleries of apsaras in Angkor Wat.

Also the cross-shaped terrace with a naga-balustrade (Fig. 15) in front of the entrance to the outer enclosure is similar to the same one in Angkor Wat cannot be unnoticed.



Fig. 18 Angkor Wat



Fig. 19 Phimai Prasat Hin

Comparing the shape of the tiers of the towers of the sanctuaries - shikharas of Angkor Wat and Phimai Hin (see Fig. 18, 19) can be seen that they are the same. At the corners of tiers of Angkor Wat and Phimai towers there are bas-reliefs of the inhabitants of Mount Meru about ones will be told later in this article. In Angkor Wat, many of these bas-reliefs are unfinished.

As mentioned above the construction of the main sanctuary was started during the reign of King Suryavarman I from 1002 to 1050. It can be assumed that Phimai Hin was built by Divakara's grandfather, the Indian Brahmin Sri, who used the layout of Indian temples that was familiar to him and a new fractation of the walls and towers of the temple for that time (more details on page 26).

Undoubtedly that Divakara visited Phimai more than once traveling with his Khmer kings to whom he was a guru.

It can also be assumed that Sri passed his knowledge and experience to his grandson Divakara who embodied, developing and expanding it in Angkor Wat using Phimai Hin as a prototype and since Divakara was a Hindu the temple for the vaishnava Suryavarman II should be built in accordance with Hindu rules and laws.

8. Vedic Cosmology

The largest unit of time in the Hindu tradition is the kalpa or day of Brahma lasts 4,320,000,000 years. A kalpa consists of fourteen manvantaras each one includes seventy-one Maha-yugas (great epochs) lasting 4,320,000 human years. Within each Maha-yuga over time man and the world around him degrade. The Maha-yuga is divided into four epochs are called Satya yuga, Treta yuga, Dvapara yuga and Kali yuga. It is generally accepted that our world is now going through the last of these periods. [7]

Yuga	Celestial years	Earth years
Krta or Satya	4800	1,728,000
Treta	3600	1,296,000
Dvapara	2400	864,000
Kali	1200	432,000

Table 1

The Kali yuga of these four cycles, our present period of time, is the worst of all. During the Kali yuga human life span is the shortest, wars and famines are common; morality and ethics are almost lost. This inauspicious time cycle lasts 432,000 years and according to the Mahabharata and the Srimad Bhagavatam Purana [5] began around 3100 BC after the Battle of Kurukshetra in northwest India depicted in the southern part of the Western Gallery (fig. 3) of the bas-reliefs at Angkor Wat. Before this battle Krishna told Arjuna and to the world the Bhagavad Gita. The Ramayana with king Rama revered by the Khmer and Thai kings took place in the Treta yuga.

9. Is Angkor Wat the mount Meru?

The Puranas²⁰ give guidelines for the proportions of Hindu temples but some ones are difficult to understand and also a classification of temples. The Agni Purana [3] in chapter 104 presents it as follows:

11-13. ...The five (classes of temples) are vairaja, puspaka, kailasa, manika and trivistapa (characterised by structures of different shapes) built over the top platform. The first (among the above) is a square, the second one a rectangle, (the third one) circular, the next one oval and the fifth one is octagonal. Each one of these is divided into nine (thereby) giving rise to forty-five divisions.

14-15. The temples belonging to the vaidja class are—the first one meru, mandara the second one, vimana, bhadra, sarvatobhadra, caruka, nandika, nandivardhana and srivatsa.

Also Garuda Purana [4] in chapter 47 “Characteristics of palaces” says

21-22. I shall mention the origin and dimensions of temples. There are five types of temples: 1) Vairaja, 2) Puspaka, 3) Kailasa, 4) Malika, 5) Trivistapa. They are the sources (models) for all other temples. The first one is square in shape; the second is rectangular.

²⁰ Puranas - are sacred ancient Indian texts in Sanskrit - shastras. During the Satya yuga or Krta yuga the shastra was the Shruti (Vedas and Upanishads), at the Treta yuga - the Smriti (Dharma Shastras, Shruti-Jivika, etc.), at the Dvapara yuga - the Puranas, and in the Kali yuga - the Tantras [7].

23. *The third is circular; the fourth is oval and the fifth is octagonal in shape. All beautiful temples are built on the model of these. They are fortyfive in all.*

24-27. *Temples built on the model of Vairdja are square in shape and consist of nine sorts, viz., Meru, Mandara, Vimdna, Bhadraka, Sarvatobhadra, Rucaka, Nandana, Pfandiiardhana and Srivatsa. Temples built on the model of Puspaka and rectangular in shape are nine: Valabhi, Grhardja, Salagrha, Mandira, Vimana, Brahmamandira, Bharana, Uttambha and Sibikdvesma.*

28-30. *Temples built on the model of Kailasa, circular in shape, are nine: viz. Valaya, Dundubhi, Padma, Mahapadma, Mukuli, Usnisi, Sankha, Kalasa and Guvavrksa. Temples built on the model of Manika Malika, oval or globular in shape, are nine :— Gaja, Vrsabha, Hamsa, Garuda, Simha, Bhumukha, Bhudhara, Srijaya and Prthividhara.*

31-33. *Temples built on the model of Trivistapa octagonal in shape, are nine:—viz. Vajra, Cakra, Mustika, Babhru, Vakra, Svastikabhanga, Gada, Srivrksa and Vijaya. Mandapas are made in the forms of Triangles, Lotus, Crescent, Quadrilateral and Bi-octagonal. If the mandapa is triangular, the owner shall win a kingdom; if lotus-shaped, wealth; if crescent, longevity...*

Obviously that Angkor Wat represents the first category in all sections: vairja - Meru.

Maurice Glaize [17] in 1944 suggested that Angkor Wat in its physical construction is a pyramidal mountain surrounded by a moat could represent Mount Meru with the Milk Sea surrounding it was churned by gods and demons to obtain amrita - the elixir of immortality (see footnote 10 on page 7). The filled water moat around Angkor Wat should represent the Milk Sea around Mount Meru .

The Puranas that Suryavarman II and Divakara must have been guided by in the construction of Angkor Wat say the following about Mount Meru:

Agni Purana [3]108.4. *The mountain rises to thirty two thousand yojanas²¹) above (the earth) and spreads to sixteen thousand (yojanas) under the earth. Its peaks are in the shape of a pericarp of a lotus.*

The Bhagavata Purana Skandha IV [5] 16.11. *As side supporters on its four sides to Mount Meru, are the (four) mountain-ranges, Mandara, Merumandara, Su- pariva and Kumuda—each ten thousand yojanas in length and height.*

16.27. *Mounts Jathara and Devakuta ta are to the east of Meru. They extend to the north for eighteen thousand yojanas in length, and two thousand yojanas in breadth, and in height. Similarly to the west (of Meru) stand two mountain-ranges, Pavana and Pariyatra. To the south are situated Kailasa and Karavira which extend to the east. To the north (of Meru) stand Mount Trsrnga and Makara. Enclosed by these eight mountain-ranges, the mountain of gold (Meru) shines like (sacrificial) fire surrounded by blades of Kusa grass, (to demarcate its boundaries).*

Angkor Wat fits this description completely with the tower of the central sanctuary as Mount Meru and the towers at the corners of the first and second enclosures as the eight mountains surrounding Meru. The galleries between the towers of the first highest enclosure represents the mountain ranges on four sides as supports. Mount Meru was not empty. The Linga Purana [6] in chapter 48 "Mount Meru" describe the main inhabitants of the mountain following

19. *There are the abodes of Brahma, Visnu and Mahesa as well as of others on it. Thus the mountain endowed with all means of pleasures and containing many lakes, is the most excellent among the mountains.*

²¹ Yojana is a measure of length in Hinduism. It is approximately 14 km. According to some sources it may be from 8 to 14 km.

20. It is full of Siddhas, Yaksas, Gandharvas²², sages and the four kinds of living beings.

21-22. O leading brahmins, on the mountain towards the left, stands a palace of seven storeys that is as clear as pure crystal. It is as extensive as though it has a thousand landing grounds. There stays lord Siva of great arms, whose eyes are the sun, moon and fire. He is seated in a gemset throne along with the goddess and the six-faced deity Karttikeya.

23-27. The palace of Visnu is also there. It extends to half of that of lord Siva and he (Visnu) stays there. In the south is the divine palace of the lotus-born deity Brahma. It is full of rubies. There is the city of Indra which is very large. There is the beautiful city of Yama. There are the cities of Soma, Varuna, Nirrti, Pavaka (fire-god), Vayu (wind) and Rudra. In their different respective palaces there are the abodes of all people. In the north-east in the holy centre of the lord, perpetual worship is maintained. The holy Nandi stays there along with his disciples and the leading Siddhas. Sanat is comfortably lodged there along with the Siddhas. The lord of Devas is there *along w)th Sanaka, Sananda and others.

So the conical columns one side of ones made as angle and from a distance resembling "teeth" (see Fig. 19), installed on the corners of tower tiers of Angkor Wat are blanks for carving of Mount Meru inhabitants - demigods, holy hermits were to be carved but did not have time to do it. These elements with completed to the finishing bas-reliefs can be seen as they should be on Phimai Hin Prasat and even some of them are standing on the ground (Fig. 20) removed for the restoration of the shikhara - the tower of the sanctuary.

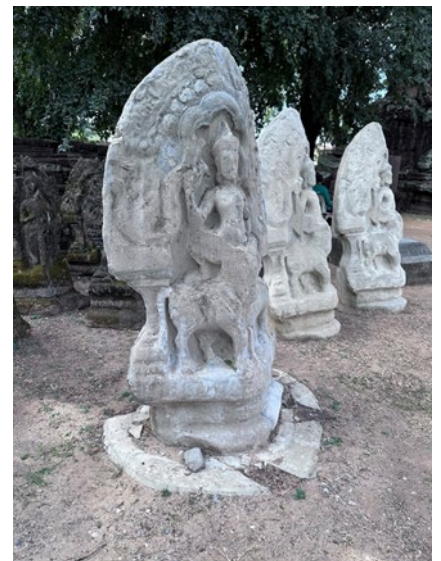


Fig. 20

Brahmavaivarta Purana. Brahma Kanda [10] Chapter 7 said
Thereafter Brahma built up eight cities over the peaks of the Meru mountain for the sport of Dikpalas (which are eight in number). The lord of the universe created the abode of Sesa and created seven islands in the nether world.

These were named as Bhu-loka, Bhuvvar-loka, the most pleasing heaven, Janaloka, Tapaloka and Satyaloka. Thereafter Brahma created Brahmaloaka a top the Meru mountain, which was free from death and old age. Above that the charming Dhruvaloka was built. Down below seven Patala lokas were created for the lord of the universe.

10. The temple is a living entity.

Although the earliest Hindu shrines and temples were small and simple structures over time the temples became more varied and complex in plan and height by degrees incorporating a variety of subsidiary structures within their complexes. The outer walls of the temples became covered with carvings and sculptures of people, animals, flowers and leaves, images of gods and goddesses, mythical divine and semi-divine beings, all of which together presented on panorama of life and religion.

Opposite that the most inner womb-like chamber of the garbhagriha remained be hidden among multiple massive outer walls accessible only through a series of ceremonial halls and staircases with decorated ceilings by carvings and the walls with bas-reliefs of deities. These halls lead gradually from the ground

²²Gandharva - celestial musician

level can be considered as earthly existence to the higher areas of Spiritual life ending finally in the dark, relatively small garbhagriha containing the image of the temple deity. Garbhagriha represents the culmination of man's quest and is the sanctum sanctorum of the temple located exactly below the top of the temple.

In Hindu tradition as in many other religions temples are considered to be the abodes and bodies of the gods.

The Agni Purana [3] in chapter 61 describes the temple as a living entity:

23. The keystone is the nose (of the temple). The two apertures (on either side) represent the two hands. The arched terrace above is to be taken for its head and the pitcher on the head.

24. Its neck should be known as the neck. The platform over the fault is spoken as the shoulder. The outlets for water are the anus and genitals. The lime-plaster is spoken as the skin.

23. The door would be the mouth. The image (installed in the temple) is said to be its life. The pedestal should be known as its energy. Its shape should likewise be known as its animation.

26. Its cavity is its inertia. Lord Kesava is its controller. In this way Lord Hari Himself remains in the form of the temple.

27. God Siva should be known as the shank. God Brahman is located in the shoulder. Lord Visnu remains in the upper portion of a temple as it is.

The architect becomes inseparably bound to his creation. If the temple site has been chosen improperly or its plan in its interrelated functioning has been disturbed the builder will suffer in the corresponding parts of his body and will die in his earthly life if he upsets the building of the main vital parts of the temple, its head, heart, and so on.

The builder and the building are becoming the one; the building is a test of the health and integrity of the builder, his "alter ego", his second body; if the building is sacred, a temple is this second body is his sacrificial body, born of a second birth, a conscious sowing of the seed in the prepared soil and the introduction of the Seed of the future building, which is the germ of the future, the Purusha, the Entity that inhabits the body of the temple. This new birth and transubstantiation has as its level the surface within the mandala.

“The identification of this body built from the Breath, which coincides with the Vastu mandala (p. 21), with the body of the builder, who is the Yajamana and patron, and with the plot, is not an abstract theory. It is felt in the living tissue of the body of the donor, who is the builder (karaka) of the temple (Samaranganasutradhara, LVI 303). [2]

11. Consecration of the Temple

A temple does not immediately become alive after its construction. It must be consecrated, give a soul, revived by invoking the deity for whom it was built.

This process is described in the Agni Purana [3] ch. 101 following

The Lord said :

1-5. I shall describe the mode of consecrating a temple» By that itself it would become permeated by the divine force» After the angular projection is completed, the preceptor should locate a pitcher made of gold or other metals at the middle of the eastern altar. It should be filled with the pancagavya (see footnote #28 pg.30), honey and milk. Five kinds of gems should be placed under (the pitcher). (The

pitcher) should be adorned with garland and cloth. It should be besmeared with fragrance. It should be decorated with fragrant flowers. The temple should be decorated with tender leaves of trees like mango etc. After having finished the accomplishing rite in his body, the preceptor should gather (his soul energy) with the breath drawn in. The preceptor should then convey to (lord) Sambhu (Siva) by his command with the exhalation of breath after the soul had been conceived as different from all the (other) souls with (the recitation of) its own mantra.

6. After having gathered the same from the twelve-petalled, that one shining like a spark-of fire, the beatific states should be located in the pitcher as laid down in the tantras.

7. The image, its qualities, the beatific states, the letters upto ksa and their lords and the collection of fundamental principles should be located.

8. The ten nadis (tubular organs of the body), ten vital winds and the thirteen sense-organs as well as their presiding deities (should be located) after having united the syllable om with their names.

9. (The two fundamental principles of) illusion and universal space which stand in relationship of cause and effect towards each other, the gods of learning who direct the pervading (lord) Sambhu (Siva) (should also be located therein) with the (recitation of) mantras.

10-12. After having located the accessories, the preceptor should prevent (the deity) from going away by showing the rodhamudra, (posture made with the fingers denoting restraint). Otherwise an image of the god (should be made) of gold or other metals and it should be purified as before with the five things got from a cow etc. After having placed the pitcher on the bed and contemplating (lord) Rudra, the consort of Uma, (the lord) should be located in that (image) as the pervasive (lord). Oblation, sprinkling, touching and repetition (of mantras) (should be done) for accomplishing (lord's) stay therein permanently.

13. After having completed thus the announcement of invocation in its three divisions, the preceptor should place the image in the pitcher.

As you can see at a certain point the deity is held in the temple. The same holding of the deity is done during the consecration of the yantra²³ or mandala.

Stella Kramrisch in the preface to her book "Hindu Temples" [2] says: *The purpose of the Hindu temple is seen in its form. It is a concrete symbol of Reintegration in harmony with the rhythm of the birth of thought and its proportions. Their perfection is the celebration of the rites performed during the construction of the temple from the ground to its top. The chanting that can be listen in the temple is not spoken in the verbal tradition and no detail is arbitrary or superfluous, each one has a specific place and is part of the whole. The Hindu temple is a set of architectural rites performed on the basis of its myth. The myth covers the ground and is the plan on which the structure rises.*

²³ Yantra is a pattern, drawing carved or painted on metal, paper or other material. Yantra is worshipped in the same way as an image of a deity (pratima). In its most general sense the word means an instrument or something by that some purpose is got. [7] Mandala is a complex yantra.

12. Vastu Purusha Mandala

Like modest shrines as elaborate temple complexes all Hindu temples were built according to the pattern of traditional diagrams - yantras and mandalas. These yantras are a special, different type from those used for private ritual worship and meditation. Architectural yantras are not temple plans but schematize the principles of the sacred temples sites are built. The dimensions and measurements of temple architecture are specified in early architectural guides which also prescribe the rituals that accompany the development of the basic building plan.

Most sacred texts provide that the plan of every Hindu temple should conform to a simple plan look like yantra called the Vastu Purusha mandala was also the model for early cities. Such a diagram is essentially a reflection of the ordered cosmos and suggests the form revealed by the Universal Purusha as a mandala in the material world. Vastu Skt: वास्तु — dwelling; Purusha Skt: पुरुषः — the primordial being, as well as the Supreme Principle or source of the cosmos (Purushottamam — the supreme soul).

A typical Vastu Purusha mandala looks like a square with its upper part facing east; sometimes the figure of Purusha himself is inscribed in the square with his head in the north-eastern corner of the mandala.

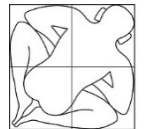
The Brihat Samhita describes Vastu Purusha in the following way. Once upon a time a certain supreme being filled the earth and the sky. The gods managed to grab him and put him face down on the ground. The gods held the limbs of this being and those gods who came into contact with certain organs began to control them. The Creator ordered that this being become the guardian of the house. Here the house is understood as any abode (for example, the abode of the soul). There is another version of these events that when Lord Shiva fought with a demon named Andhaka, drops of Shiva's sweat fell on the ground. From one drop Purusha was born. Having become hungry, he began to devour everything that came his way. The gods turned to Brahma for help. He advised to grab Purusha and throw him face down. 45 gods held Purusha on the ground, and Brahma blessed him and made him the deity of the space of the house - Vastu. Since then, every house is controlled by Vastu Purusha and if rules of house planning are not performed it will bring grief and all sorts of disasters to the home and those living in it and the deity built for it will not come to the temple.

Tradition defines 32 types of Vastu Purusha mandalas the simplest one is a square which in the process of its development is divided into smaller squares (raya).

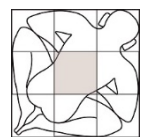
Vastu Purusha mandalas can take both simple ones from Sakala, Pechaka and Pitha Vastu Purusha mandalas to more complex forms. The most common types of Vastu Purusha mandalas are Manduka Vastu Purusha mandala with a size of 8x8 squares and consisting of 64 squares, respectively, and Paramasaika Vastu Purusha mandala with a size of 9x9 squares and consisting of 81 squares. In all types of Vastu Purusha mandalas starting from Pitha Vastu Purusha mandalas, the central area of ones four or nine squares is dedicated to Brahma.



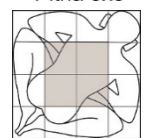
Sakala 1x1



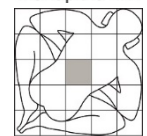
Pechaka 2x2



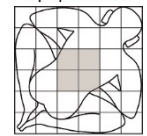
Pitha 3x3



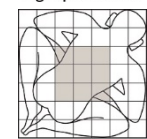
Mahapitha 4x4



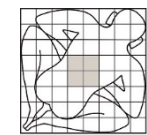
Upapitha 5x5



Ugrapitha 6x6



Sthandila 7x7



Manduka 8x8

The Paramasaika mandala 9x9 has 32 squares at outer perimeter each of them is dedicated to one god whose name is sometimes inscribed in the corresponding sector. Thus each direction on the cardinal points has eight gods: north-east - the Sun (Surya), east - the Moon (Soma, Chakra), north-west Venus (Shukra), north Saturn (Shani), west - Jupiter (Guru, Brihaspati), south-west - Mercury (Buddha), south - Mars (Mangala), south-east - the North Lunar Node²⁴ (Rahu (see footnote #19 pg. 11))

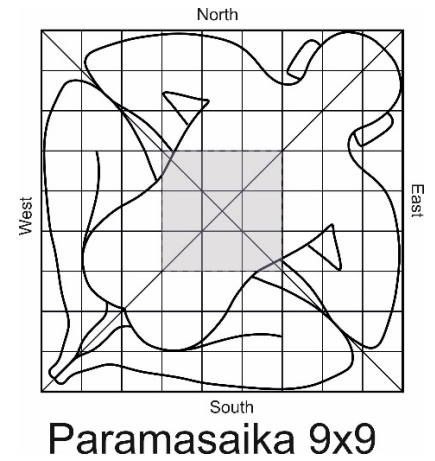


Fig. 21

The cosmic character of such a distribution of gods and cardinal points is given by the identification of each of the eight directions with certain planet. The designing of such a plan of the temple ensured the architect for presenting of all the gods in the future temple.

Vastu Purusha mandala does not limit the architect by Paramasaika mandala with a division of 9x9 squares. The scriptures allow for the creation of more complex types of Vastu Purusha mandalas with divisions up to 1024 squares.

Once the architect has decided on the type of Vastu Purusha mandala at designing a temple plan and corresponding grid from that moment he can place the walls and pillars of the building such a way as not to violate the rules and energy balance of the temple.

Shikhi	Parj- anya	Jayauga	Indra	Surya	Satya	Brisha	Anta- riksha	Anila
Ditih	Apaha						Savitra	Pusha
Aditi		Apa- vatsa		Aryama		Savitha		Vitatha
Bhujagaha								Brihatkshata
Somaha		Prithividhara				Buacuan		Yama
Bhallaga								Gandharva
Mukhya		Radja- akshma		Mitra		Indra		Bhringaraja
Akihi	Rura	Shoshana	Asura	Varuna	Kusumalanta	Sugriva	Jaya	Mriga
Rota	Papa- kshama						Dhau- varika	Pitha

Fig. 22

²⁴ North Lunar Node - The plane of the lunar orbit is inclined to the plane of the ecliptic (the plane of the Earth's orbit around the Sun) at an average angle of 5° 09'. If we conditionally take the Earth's ecliptic as a horizontal plane then it turns out that for half of the cycle of the Moon movement around the Earth is above the plane of the ecliptic (Northern latitude - the side of the Earth's North Pole) and the other half of this cycle it is located below this plane (Southern latitude). The point of intersection of the lunar orbit with the plane of the Earth's ecliptic when the Moon passes into Northern latitude, is called the North Lunar Node, and into Southern latitude - the South Lunar Node. The lunar nodes continuously move along the ecliptic towards the movement of the Moon itself, i.e. to the west making a complete revolution along the ecliptic in 18 years 7 months (6793 medium days).

The exact proportions of the Vastu Purusha mandala do not matter because it is not an exact plan but a kind of forecast opening a wide range of possibilities for the architect. The ritual diagram is understood as an ideogram according to the temple represents the materialization of the concepts that it embodies.

Thus, this simple graphical diagram not only represents the energies of the cardinal geographical directions but also has astronomical and astrological (in Jyotish Hinduism) references providing a map of the cyclic rotation, day, month, year, etc. This thirty-two variations of mandalas in Hindu sacred texts on architecture are the earliest type of architectural yantras contribute significantly to the rhythms, design and conceptual framework of the Hindu temple.[9]

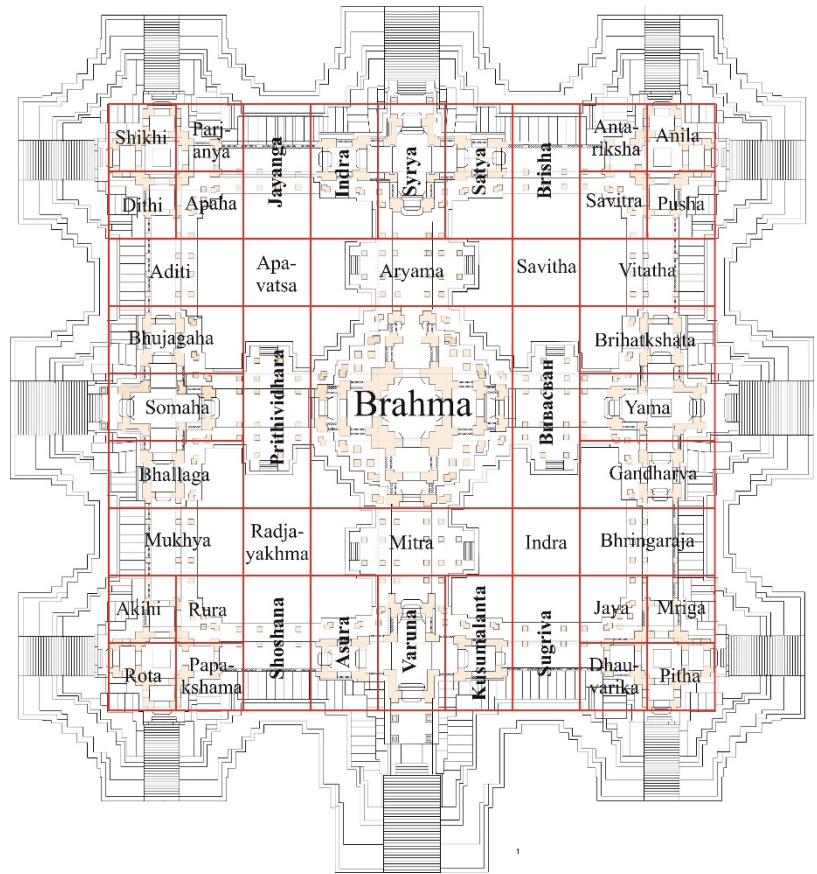


Fig. 23

There is no doubt that the architect based his design of Angkor Wat on the above principles. The superposition of the Paramasaika VastuPurusha mandala 9x9 on the upper level plan clearly shows this. The sanctuary is clearly fits in the central 3x3 area and the altar also clearly lies in the central square of the entire mandala. The central exits to the cardinal directions and the exits from the inner galleries from the central sanctuary also lie on the squares of the Vastu Purusha mandala.(Fig. 23)

level galleries and the opposite doorway pilasters of the same galleries is 33 phyam (fig. 24). The height of the central tower of the sanctuary from the capstone to the bottom of the shaft or to ground level is 33 phyam (fig. 39).

The reason for such a widespread use of the number "33" was probably mentioned above Cambodian legend about Prakh Ket and his palace of the "heaven of the Thirty-three" which Angkor Wat was supposed to repeat. Also of no small importance and perhaps the main reason for using the number "33" was the Vastupurusha mandala (p. 24) according to which all dwellings, palaces and temples were built. The Vastupurusha mandala has 32 gods located along the perimeter plus the 33rd Brahma in the center (see Fig. 23). This technique is also known in Hindu architecture as "one more" that is a step beyond the generally accepted framework, a step outward [2]. This technique will be seen further in the example of the number "45".

The imposition of a grid with a step of 1 phyam (Fig. 24) shows that everything in the plan of the upper level (1st enclosure) of the Angkor Wat sanctuary is subject to such a grid: the galleries are on the gradation of the grid and even the columns are on the lines of the grid.

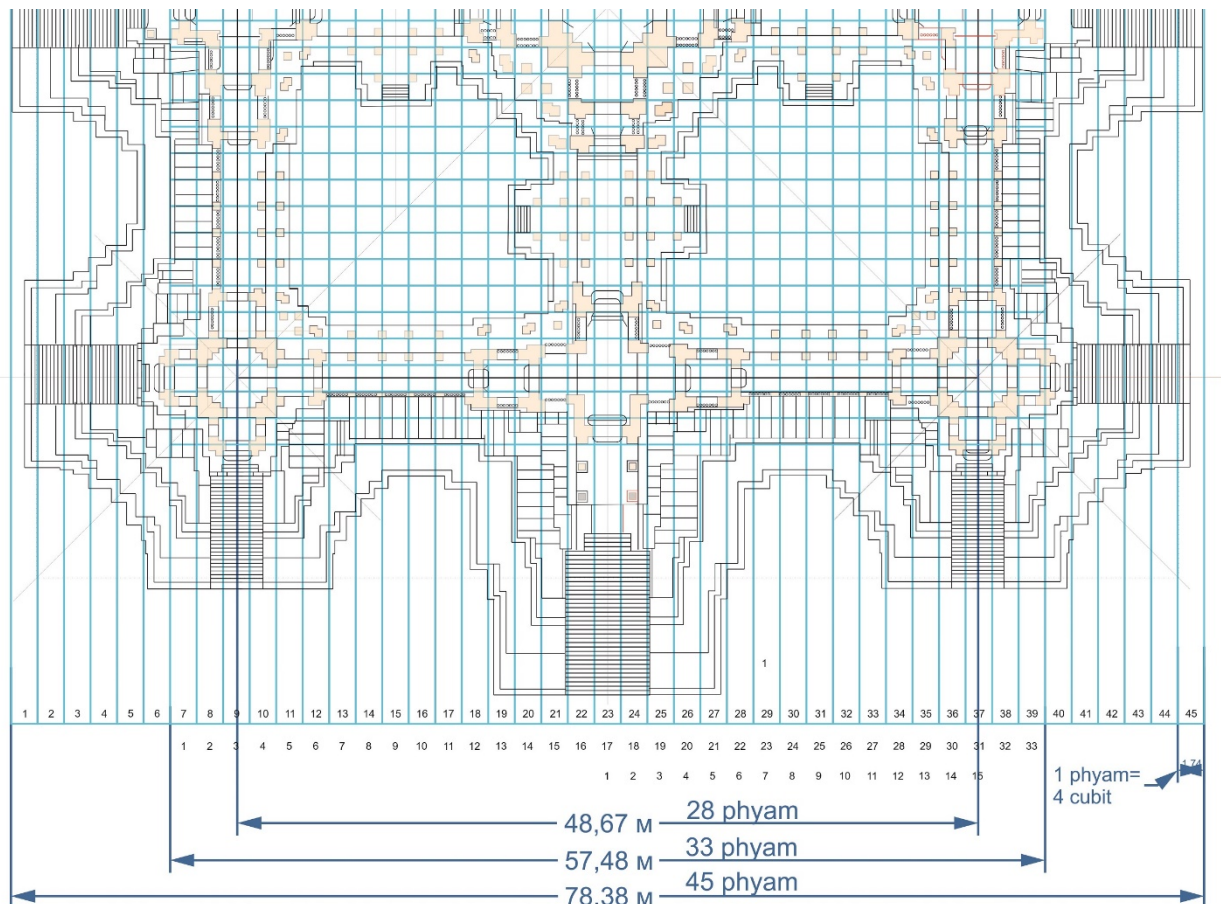


Fig. 24 Upper level of Angkor Wat

Number 45

The number 45 is also often found in Angkor Wat. As can be seen the distance between the extreme northern and southern points of the staircases on the upper level is 45 phyam (Fig. 24). There are 44 columns around the central tower making the central tower itself the forty-fifth main column of the sanctuary. Brahma is surrounded by 44 deities in the Vastu Purusha mandala and itself represents the forty-fifth and supreme deity. On the upper level of the Angkor Wat sanctuary the distance between the

beginning of the side entrance staircases is 44 phyam and between the central northern and southern entrances is 45 phyam.

Numbers 27 and 28

The number 27 is the number of Nakshatras in Jyotish - Vedic astrology. Nakshatras are lunar constellations or "lunar houses" through which the Moon (Chandra) passes.

In Hinduism Nakshatras are identified with the 27 wives of the god Chandra. According to legend he had to visit to each of the Nakshatras in strict order without giving preference to any of the wives. Each Nakshatra occupies $13'20''$ from the full circle of Chandra (the Moon), those accordingly full circle consists of 27 Nakshatras.

Earlier in the Vedic tradition there was also a 28th Nakshatra named Abhijit which in Sanskrit means "winner" disappeared in Kali yuga. Sometimes Abhijit is associated with Krishna, the victor in the Bhagavad Gita, who was killed in the Kali Yuga.

In the plan of the upper level of Angkor Wat there are 27 pillars on one side of the main entrance.

28 is the number of pillars on both sides of the side entrance and as can be seen in Fig. 24 this is the distance in phyams between the galleries of the upper level and more importantly between the axes of the side towers of the upper level of Angkor Wat.

14. The pattern of the tiers of the upper level Angkor Wat towers

Indian science and architecture had a huge if not decisive influence of the temples of Angkor. Both the layout of the entire temple and the formation of the pattern of the tiers of the vimana of Angkor Wat towers of were based on the Vastu Purusha mandala. The evolution of shikhara in India is described in detail in the book *Hindu Temple by Stella Kramrisch* [2] and continued in the work «*Fractal geometry as the synthesis of Hindu cosmology in Kandariya Mahadev temple, Khajuraho*»[11].

Both works consider the idea of capturing cosmic energy by fraction (additional division) of the Vastu Purusha mandala of the temple plan. In the work [11] with reference to *Arnheim R. "Art and visual perception". Los Angeles: University of California Press; 1954* a hidden "force field" is described within the square where each side of the square applies a force to the center and the center of the square applies an equal counter force to each of its sides (Fig. 25a). In the case of dividing the square into 9, each side of the grid of nine squares applies equal forces to the center which itself is a square and to create balance this central square also applies an equal and opposite force to each side of the grid. Accordingly within the grid of nine squares the "force field" becomes higher because within the grid each square also has its own "force field" (Fig. 25). Thus, the increasing number of squares in the mandala helps the diagram more effectively trap energies there where the "force field" increases proportionally to the fractal division and radiate the trapped energies to the center.

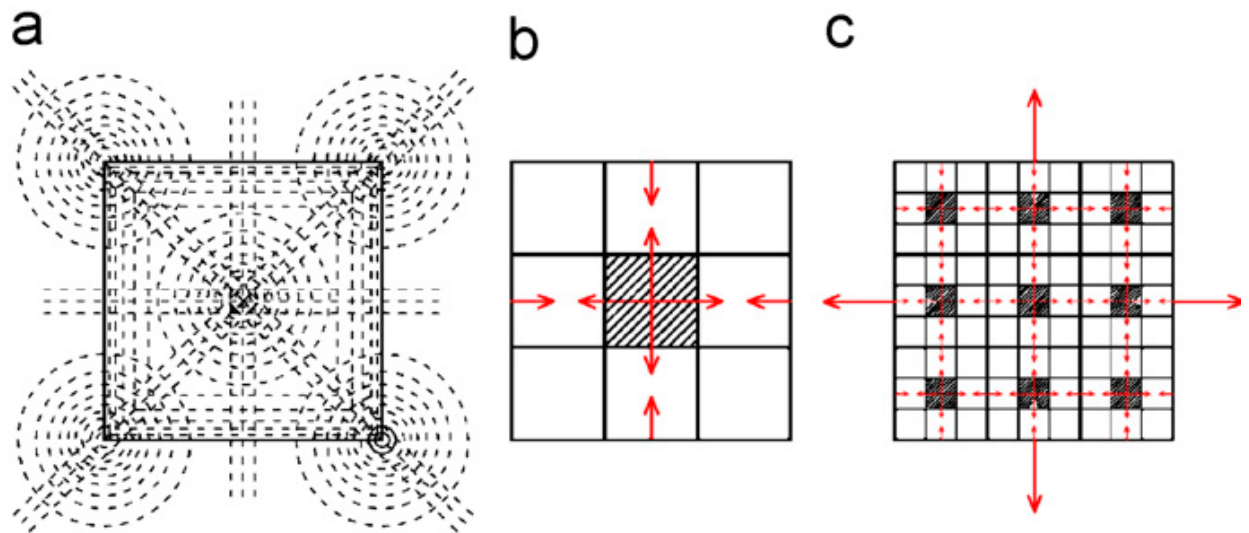


Fig. 25 taken from [11]

The square Vastu Purusha mandala evolved into various forms for application to the temple plan. Over time these mandala forms evolved into complex ones through some transitional stages. During these stages some of the earlier temple plans show that the fact of using cosmic energy played a major role in the iterations of the mandala fractionation.

Initially in the early centuries the Hindu temple plans were nothing but direct copies of the Vastu Purusha Mandala. For example the Parvati Temple at Nachna (Fig. 26) built in the 6th century CE is one of those temples in which the general shape of the foundation and the dimensions of the sanctum sanctorum were built in accordance with the Manduka (8x8) of the Vastu Purusha mandala.

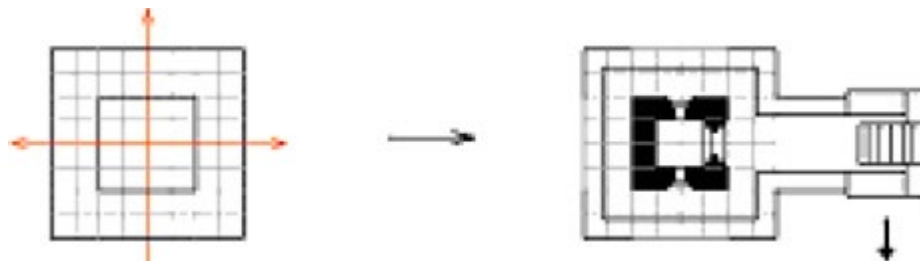


Fig. 26 taken from [11]

This square temple plan was later modified by pushing the grid elements of each side outward in four directions representing the radiation of cosmic energies after that the shape of the temple plan became a visual representation of the energetic directions. In the sixth century to the seventh century CE Hindu temples such as the Vishnu temple at Deogarh were usually built on this modified plan following the Vastu Purusha mandala.

The practical reason for the architects to use offsets and extrusions of the outer temple and sanctum walls was creating additional surfaces for images could be placed there reflecting and manifesting the divinity within.

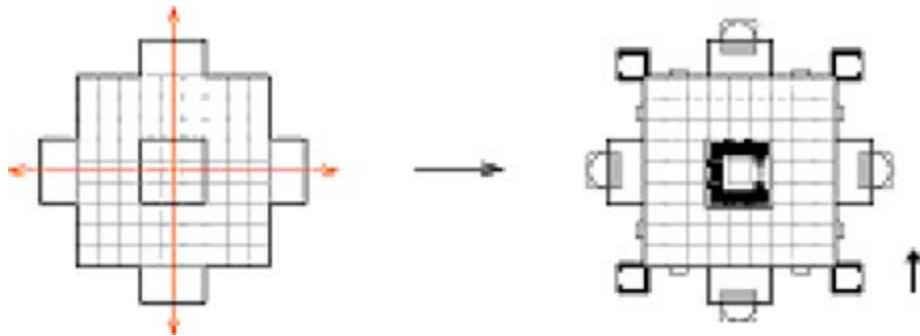


Fig. 27 taken from [11]

At the next step each side of the mandala square is pushed out twice. By repeating the same process each side of the mandala square achieves such fractal pattern which more clearly expresses the directions of the radiation of cosmic energies. This pattern was used in the plan of the Surya temple in Modhera in the 11th century (Fig. 28).

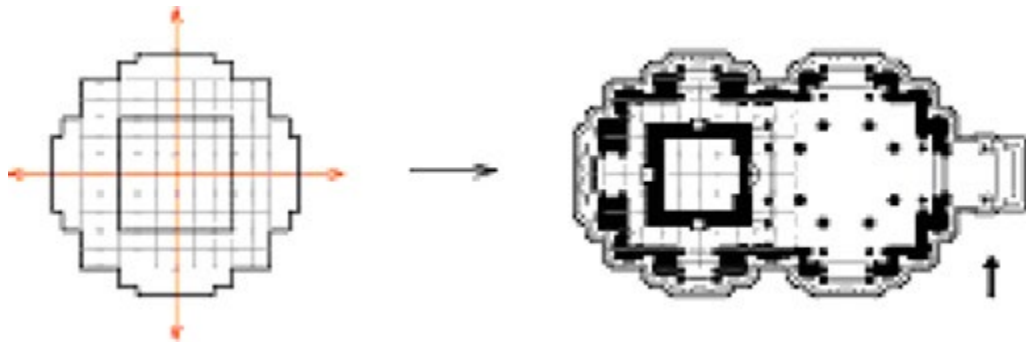


Fig. 28 taken from [11]

At the same time in slightly later temples in central India, such as the Vishvanatha Temple in Khajuraho, Madhya Pradesh, dated 1002 CE, the following is used - the third stage of extrusion already extruded side of the square of divided by 8x8 Vastu Purusha mandala which was been original plan of the temple, leaving a space of 2x2 square for the inner "brahmasthana" - the altar and for whole sanctuary is allocated a space of 4x4. At using the Manduka (8x8) of the Vastu Purusha mandala, as can be seen in Fig. 29, for the third extrusion of the outer side needs a larger division than 8x8 . [13]

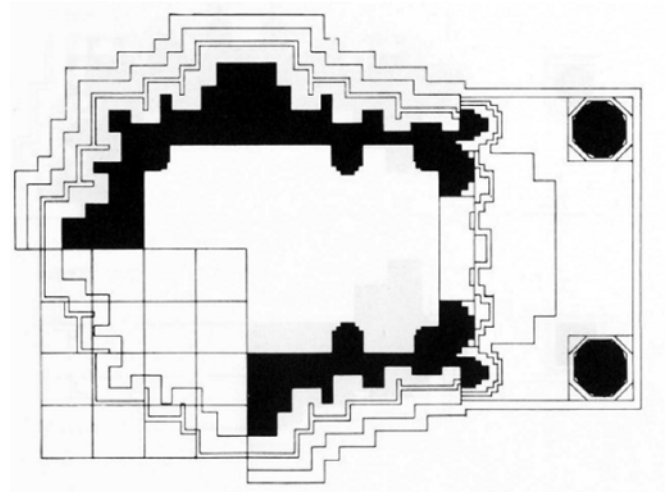


Fig. 29 taken from [13]

The plan of this temple and additional extrusion already brings it closer to the pattern of Angkor Wat towers .

During of studying the patterns of the vimana tiers of the central tower of the upper level of Angkor Wat repeating for the four towers surrounding it, as a result of numerous trying and assays was revealed that the pattern of the vimana tiers most clearly fits into a square with each side divided into 33 parts.



Fig. 30

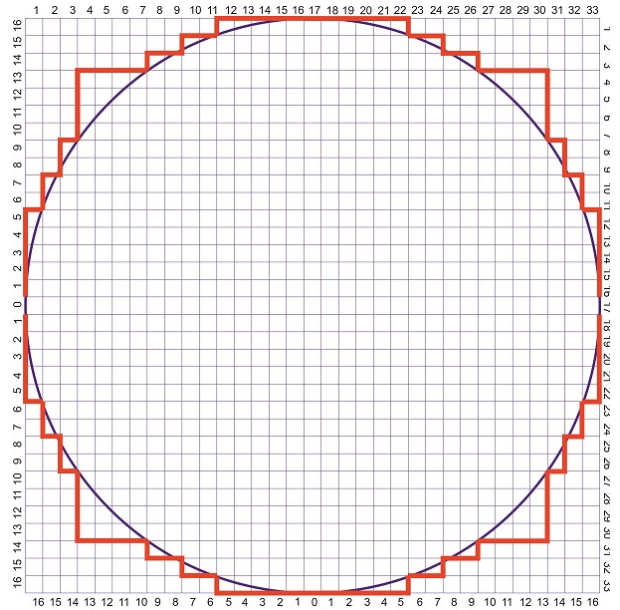


Fig. 31

The tiers elements were measured using high-resolution photographs of the Angkor Wat tower from different angles.

The architect of Angkor Wat took as a basis a square with a division of 27x27. The number 27 is the number of naksharas (see page 24) in the Vedic astrology of Jyotish also digit 27 is 3 time by 9. The meaning of digit "9" is little lower. Then by way of extruding each side by 19 elementary parts ($1/27$) on depth of one (Fig. 32) elementary part of main square.

The number 19 is 1 central "zero" part and two nines on both sides.

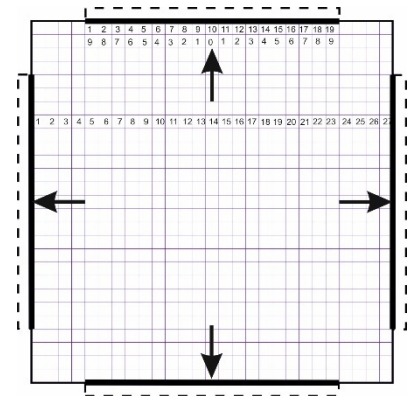


Fig. 32

The number 9 plays a special role in Hinduism and Vedic numerology.

Krishna in Bhagavad Gita 7.4 [15] speaks of 8 elements of material nature which make up His lower nature: water, earth, air, fire, ether (*pranomaya*), mind (*manomaya*), intelligence (*vijanomaya*) and false ego (*ahankara*²⁵). and in verse 7.5 adds a ninth, His supreme nature, which in the form of individual souls supports the Universe.

Similarly Vedic numerology considers the number 9 and describes it as being beyond *Prakriti*²⁶, known as the Primordial Nature and consisting of the three *gunas*²⁷ and five elements: water, earth, air, fire, ether. Transcending the impermanent material nature, 9 is thus the number of the unchanging Purusha (Consciousness). The eight elements of Prakriti + 1 (Purusha) form 9 - the entire manifested world of names and forms. This one Purusha assumes many forms and creates diverse forms together in the eight-element Prakriti.

The number 19 represents as an illustration of given above a principle of "one more" or "one step out". Two 9's make 18. One step out is 19.

Also Suryavarman II appears in Heavens and Hells panel (fig. 9) between 19th and 20th columns in row of columns exactly in the center and 19 is the number of princes represented on this panel in Heaven.

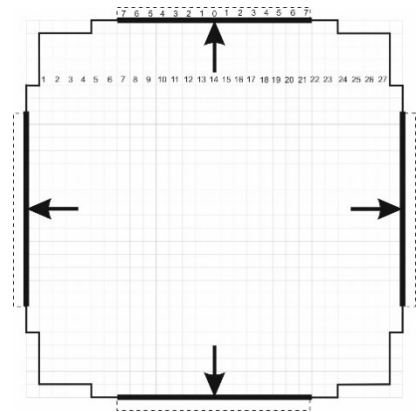


Fig. 33

After that, each already extruded side was subjected to double extrusion at first by 15 parts (15/27 of the square) this is the central "zero" element with two sevens on the edges, and then each extruded part was extruded by eleven primary elements of the square (Fig. 33), i.e. 11/27, which is the central "zero" element with two fives on the sides (Fig. 34).

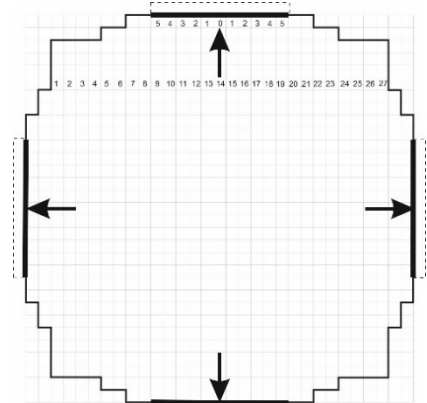


Fig.34

²⁵ Ahankara (Romanized Ahamkara) is a non-physical substance that envelops our "true Self" – the soul, so that a person can perceive the material world and act in it. Also it is a false identification of oneself only with one's body. Ahankara appeared at the very beginning of the creation of the world: AP17.2. *Brahma, the unmanifest, was the existent being. There was no sky, neither the day nor the night etc. Visnu having entered the nature (Prakriti) and the soul (Purusa), then agitated them.*

AP17.3. *At the time of creation, the intellect (Mahat) (emanated first). The ego (Ahankara) came into being then, and then the evolutes (Vaikarikas), 1 the lustre (taijasa), the elements etc. and the darkness (tamasa).*

²⁶ Prakriti – Sanskrit प्रकृति, material nature or the manifested universe

²⁷ Guna (Sanskrit गुण) – literally means "rope", in the meaning "quality, property". A category of Hindu philosophy that describes the qualities of the elements (both inanimate and animate) of material nature, consisting of three gunas: Sattva – goodness, Rajas – passion and Tamas – ignorance.

The number 5 is well known to everyone - it is the number of fingers on the hand. In Hinduism, this number is often encountered, in particular, it is *pancha-gavya*²⁸. (pancha - five) often used in Hindu rituals.

Thus, the sizes of the extruded parts on the sides of the central "zero" element form a series 9-7-5.

All 3 extrusions occur on depth of 1 elementary element of the square, i.e. by $1/27$, which results in the final pattern of the Angkor Wat tower tier measuring 33 by 33 elements. The results of the second and third extrusions of the primary 27×27 square are inscribed in rectangles with a clear ratio of sides: the second extrusion into a rectangle with a ratio of 1:2, the third extrusion into a rectangle with a ratio of 1:3 (Fig. 35). It is quite possible that these ratios were decisive in constructing the pattern of the vimana tiers.

At this construction the internal angles of the vimana tower tiers contour most accurately fit the circle inscribed inside the tower tiers pattern. (Fig. 32)

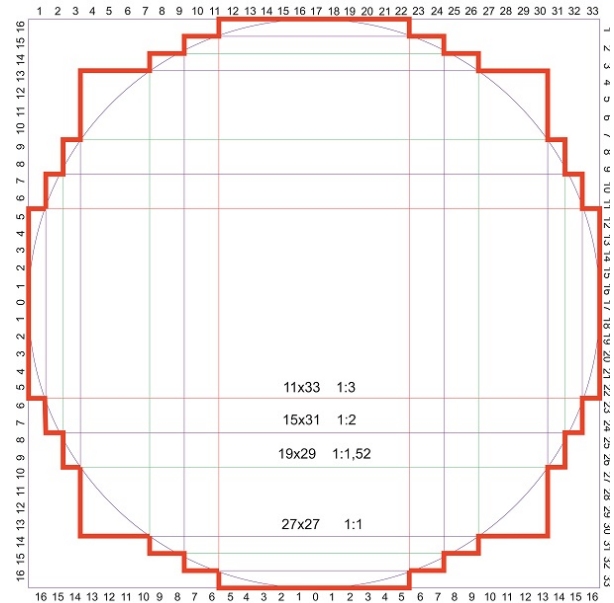


Fig.35

The entire construction of the Angkor Wat towers is subordinated to dividing the square of tier into 33. The body of the vimana between the tiers repeats the tier pattern but differs in transverse size from the upper tier by two $1/33$ of the tier width on each side, i.e. each tier is $4/33$ smaller than the lower tier.

Transverse sizes of tiers or sizes of the squares the tiers of the central tower of Angkor Wat are inscribed clearly fit into the dimensions by cubits: 1st tier - 27 cubits, 2nd - 26 cubits, 3rd - 23 cubits, 4th 20 cubits, 5th 17 cubits. (See fig. 39). The next tiers are 6-13, 7-9.5 and 8th, 9-5, forming the amalaka of the tower.

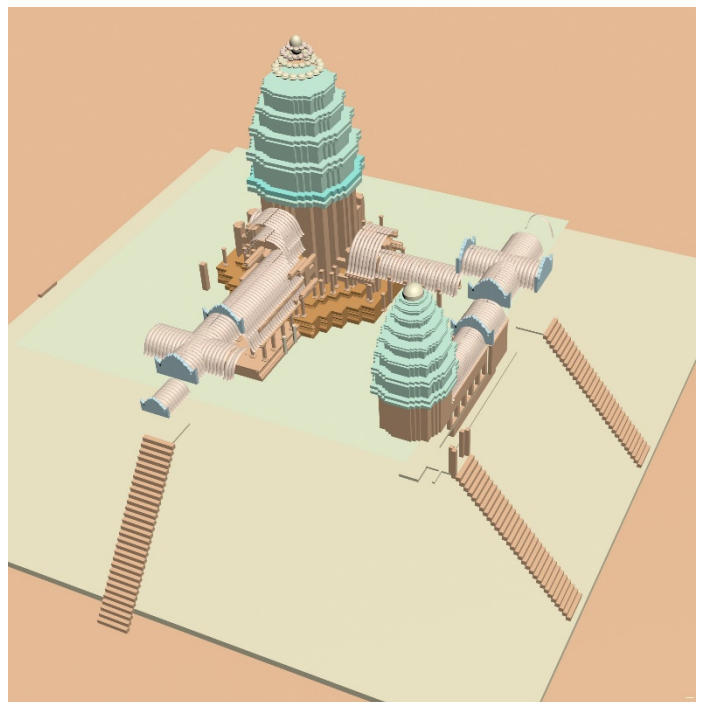


Fig. 36

Fig. 36 shows an unfinished 3D model of the upper level of Angkor Wat with towers shikhara tiers are built according to the above principle.

²⁸ Pancha-gavya – five cow products – milk, curdled milk, ghee (clarified butter), urine and manure. The last two components are added in small quantities.

15. Curved form of Shikhara.

Stella Kramrish in her work "The Hindu Temple" [2] states that the forms of Shikhara or curvilinear superstructure of Hindu temples, originated from the forms of tabernacle²⁹ built of large banana or palm leaves, bamboo trunks stuck into the ground at the corners of a marked square, bent upwards and tied at the central point.

The tabernacle is the arch of vegetation, the arch of Nature crowns and encloses the abode of God. It served for performance of worship (puja) and vows (vrata). After these pujas and vratas are completed, the leaves and branches of the tabernacle consisted having served their purpose are thrown away. Since the form of these temporary and simple buildings was embodied in brick and stone and began to tower over the Garbhagriha innumerable Shikharas compete to this day for the Supreme Point.

This is the most sacred of all forms of superstructure intended only for the Garbhagriha and is never a superstructure over the mandapa or any other subsidiary building of the temple.

The construction of the curvilinear shikhara by dividing it in geometric progression, particularly into four parts (chaturguna-sutra) is given in the Hayasirsapancaratra, XIII. 324 f. and the Agni Purana [3], XLII. 15-17.

Agni Purana [3] speaks of only four lines to be drawn separately - from the base of the shikhara to the other end. These vertical lines are intersected at certain intervals by horizontal lines. The height of the shikhara trunk should be divided geometrically into a certain number of parts: three, four, five or six according to the Samaranganasutradhara. A line parallel to the height is drawn from the base of the shikhara up to other end, the Skandha, and another parallel from the end of the base of the shikhara forming a rectangle. The width of this rectangle is equal to 2 parts and its height is equal to the height of the shikhara trunk.

As many parts as the height is to be divided into in geometric progression so the narrow side of the rectangle is divided into the same number of parts. The texts always speak of "tri-guna, chatur-guna", etc., "sutra". This undoubtedly implies that the division of the height is to be made in geometric progression (guna sankalita).

From these instructions repeated in the description of almost every variety of shikhara (in Chapters LVI and LVII of the S.S.), it follows that the curve of the shikhara is given by connecting the points of intersection of these lines.

The total height is to be divided, for example, in geometric progression into six parts (sadguna-sutra). The narrow side of the rectangle is to be divided into six equal parts. The vertical parallels drawn through these points are equidistant. They intersect the horizontal parallels drawn in geometric progression. The curve is drawn through their points of intersection.

The method of constructing the curve was well known and required no explanation. Depending on the number of divisions, a different curve was obtained. It was enough to indicate this number; by controlling the lines in accordance with the well-known method it was necessary to make a step of the superstructure.

²⁹ Tabernacle: a portable tent for performing rituals on the move.

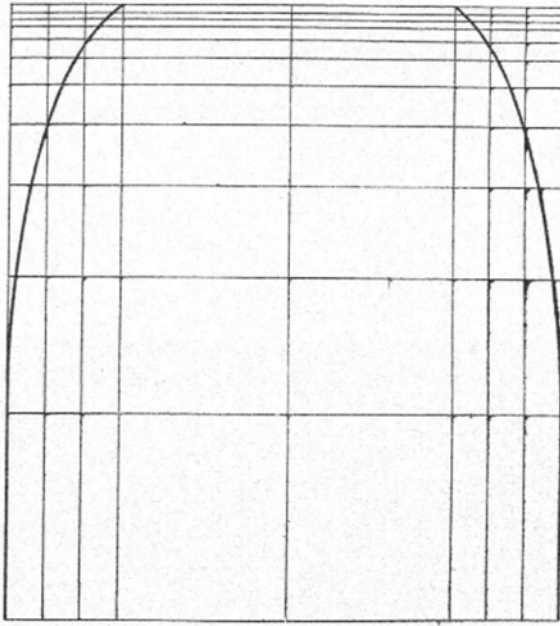


Fig. 37 Shikhara curve drawn with the help of the “Trigupa Sutra”, the end of the rectangle is divided into three and the side is divided geometrically into three. Taken from [2].

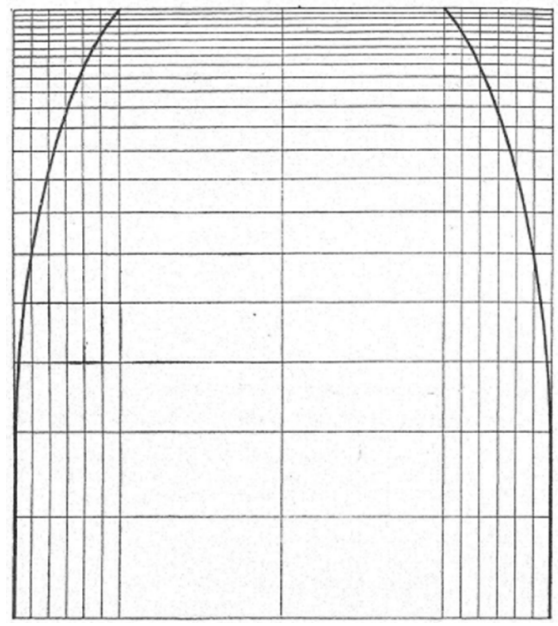


Fig. 38 The curve of the shikhara drawn with the help of the “Shadguna-Sutra” (division and geometric progression by six) is more refined than the curve drawn with the help of 3-, 4- or 5-fold division. Taken from [2].

But these methods are not applicable to the towers of Angkor Wat. The curved part of the Angkor Wat tower - shikhara is differs in its shape from the classical Indian shikharas and differs from them in shape.

However, the dependencies of the construction of the Angkor Wat shikhara anyway exist.

One of such dependencies is the dependence of the location of the tiers by height from the ground level or the lowest point of the shaft. It is a uniformly decreasing increase in the height of the tiers by height in cubits (Fig. 39).

The first tier of the shikhara is at a height of 101 cubits from the bottom of the shaft,

the 2nd tier is 7 cubits higher - 108 cubits,

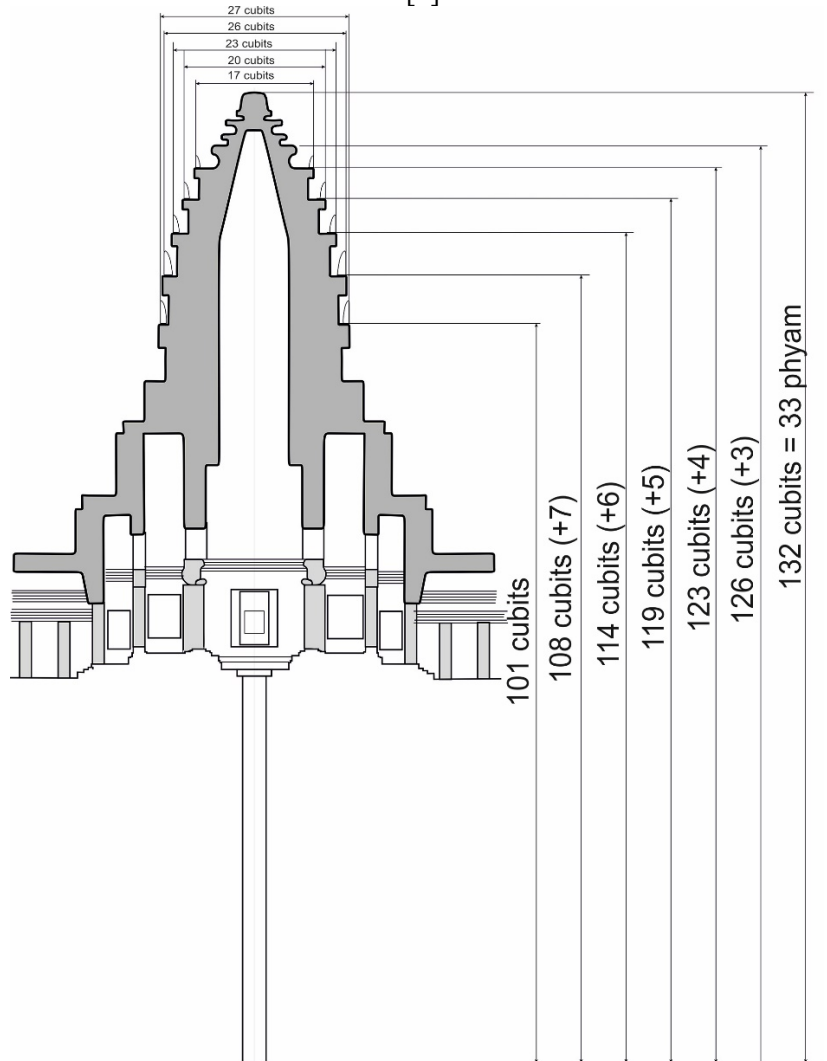


Fig. 39

the 3rd tier is 6 cubits higher than the 2nd - 114 cubits,

the 4th tier is 5 cubits higher than the 3rd - 119 cubits,

the 5th tier is 4 cubits higher than the 4th and

the 6th tier is 3 cubits higher than the 5th.

This dependence even together with the width of the zones does not explain the shape of the shikhara.

Another dependence is that the tiers of the Angkor Wat shikharas with the exception of the first tier and the amalaka of the tower, fit into a parabola. The amalaka of the Angkor Wat tower represents the perianth of the lotus as prescribed by the Agni Purana [3] 108.4 for temples representing Mount Meru (see p. 17).

For illustration purposes, the parabola is superimposed on a photo of the towers of Angkor Wat.

Since the view of the towers is from the bottom up, the position of the parabola's vertex does not correspond to reality in Fig. 40. The drawing of Fig. 42, made to scale, shows the actual position of the parabola.

As is known, the property of a parabola is to concentrate a parallel beam of rays at one point, called the focus (Fig. 41).

The parabola has the formula $y=ax^2$, where in our case y is the vertical coordinate, x is the horizontal coordinate

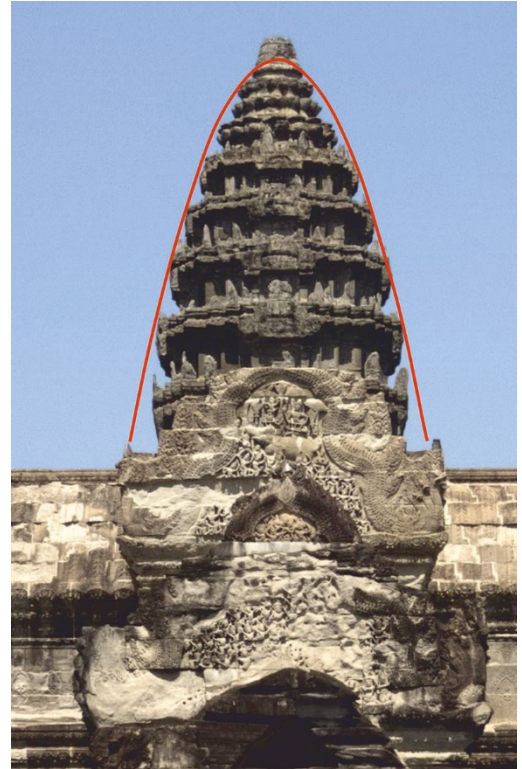


Рис. 40

and a is the coefficient affecting the opening of the parabola branches. The coefficient a is significant when the parabola is considered in an already specified coordinate system. In other words, the coefficient a changes when the parabola is considered either in an enlarged coordinate grid or in a reduced one. If it is necessary for the coefficient $a=1$, i.e. for the parabola formula to look like $y=x^2$, then it is necessary to find such a dimension of the coordinate

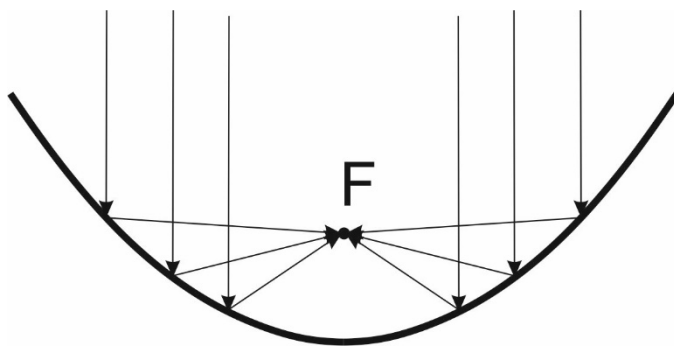


Fig. 41

system that at the point with the ordinate $x=1$ the parabola has the abscissa $y=1$, as shown at Fig. 42.

The formula for finding the coordinates of the a parabola $y = a * x^2$ focus is $p = 1 / (4 * a)$.

In our case, the coefficient $a = 1$ and based on this, the focus of our parabola will be located at the point with the ordinate $x = 0$ and the abscissa (y) $p = 1 / 4 = 0.25$ from the origin of the coordinate system or from the top of the parabola.

As you can see, the focus of the parabola is exactly at the top of the capstone. Here, all the rays reflected from the parabola, coming in a parallel beam from below, from the ground or from the side of the shaft will converge in that point.

Thus, the tower of Angkor Wat is a concentrator of waves at the top of the capstone. A critic may answer that the surface of the tower is not smooth and the reflection will not be in the same direction as from an ideal parabola. This will happen if half the length of the reflected wave is close or smaller in size to the size of the distortion of the parabola line. If the half wavelength will be five times larger than the size of the distortion of the parabola line then the reflection will be correct.

Reference: the wavelength is the distance that the wave travels during one period of oscillation. The period of oscillation T is the time interval during which one complete oscillation is completed and the oscillation object returns to the starting point.

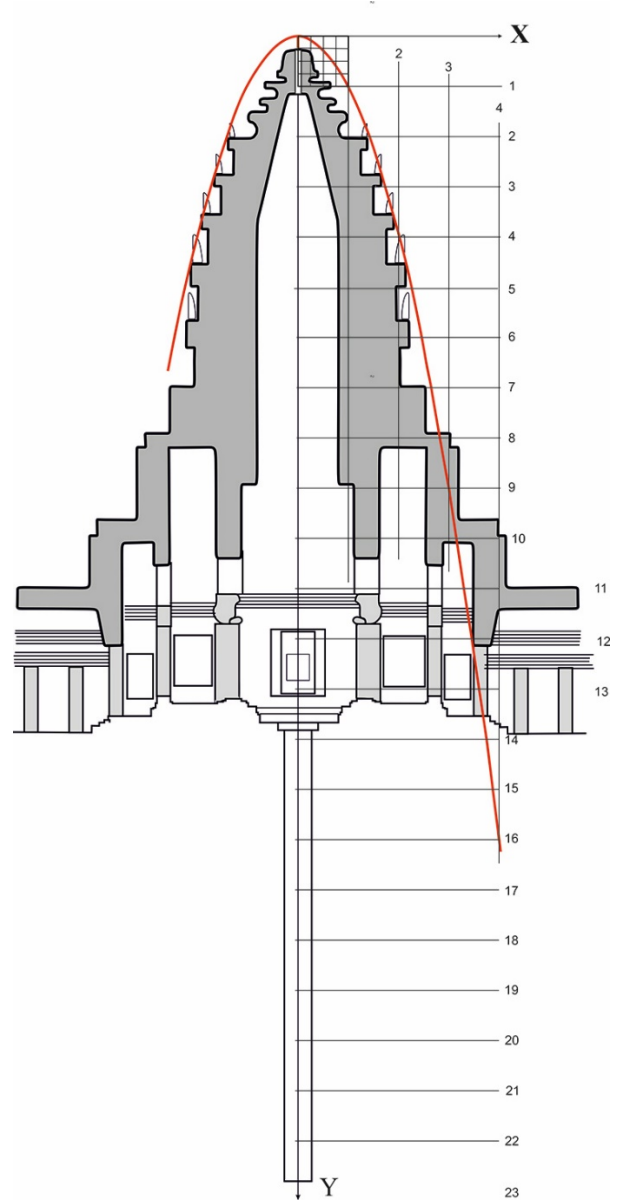
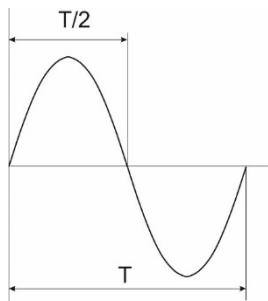


Рис. 42



The wavelength depends of the frequency (frequency is the number of oscillations or periods T per second) and of the speed of wave propagation in the environment. If the waves are acoustic sound then the speed of wave propagation or, in our case sound, in air will be 335 m/s and in porous building materials on average speed is 4700 m/s. As can be seen from the drawing above the maximum distance between the tower tiers is 7 cubits - this corresponds to 3 meters. For a sound with a wavelength of 3 meters the period in stone will be 650

microseconds that will correspond to a frequency of 1540 Hz. Half of this divided by 5 will be 150 Hz which corresponds to a low audible sound and low throat singing. Such a sound will reflect well from the inner surface of the tower and concentrate at the top of the capstone.

But the sound waves will not hit the shikhara "parabola" in a parallel flow but from a point approximately located at the location of the image of the deity. In addition, the sound waves must overcome the boundary between the air environment and the stone environment of the shikhara upon crossing that border the sound waves will also refract and change their direction. Therefore the sound waves will not concentrate at the top of the capstone. Besides sound waves there are electromagnetic waves of the Earth has ultra-low frequency of units and tens of hertz forming a standing wave between the surface of the earth and the ionosphere and called the "Schumann resonance". These waves were predicted by physicists J. F. Fitzgerald and Nikola Tesla and discovered by the German physicist Schumann in 1960 [18]. The main frequency (first harmonic) of these waves fluctuates during the day from 7.5 to 8.5 hertz, the second and third harmonics are respectively 14.1 and 20.3 hertz. At a speed of propagation of electromagnetic waves of 300,000 km/s the wavelengths will be 37,500 km for the first harmonic, 21,300 km for the second, and 14,800 km for the third. For such wavelengths, the gold- or copper-plated surface of the shikhara of Angkor Wat which represented the golden mountain Meru (... *Surrounded by these eight mountain ranges, the golden mountain (Meru) shines like the (sacrificial) fire* Bhagavad Purana [5] 16. 27), as was the copper-plated Baphuon (see map fig. 1), the state temple of Angkor in 1060, would be an ideal mirror.

16. Longitudinal hole in the capstone.

If considering the tower as an amplifier and concentrator of energies in the capstone of Angkor Wat the necessity of the hole in the capstone depicted in Fig. 42 above is obvious.

As already mentioned, in the Agni Purana [3] 61.23. in the section describing the temple as a living being, says: "The keystone is the nose (of the temple). The two holes (on both sides) represent two hands." As close as this statement may seem to the vertical through hole should be in the capstone of Angkor Wat, it is not so. An illustration of following this "instruction" is the Neang Khmau temple in Koh Ker, 110 km from Angkor, which has a vertical channel up to the capstone but then turns into a horizontal channel as shown in Fig. 43 by Henri Parmentier.

The necessity and obligation of the existence of holes in the capstones of the temples of Angkor are described in detail in the work "*The Importance of Zenith Passage at Angkor, Cambodia*" by Edwin Barnhart and Christopher Powell.[14]

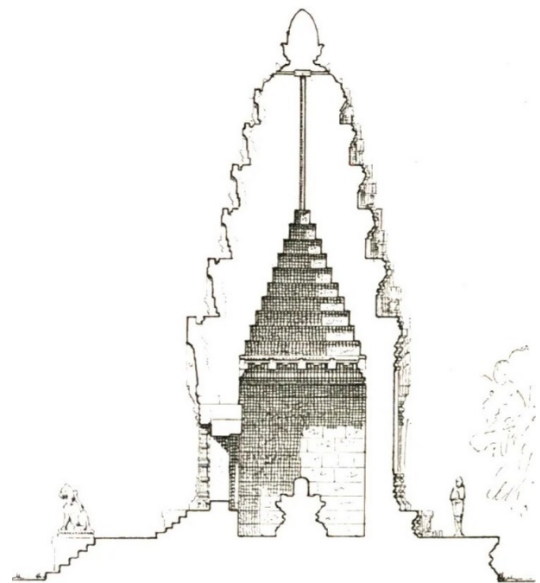


Fig. 43 Neang Khmau
Drawing by Henri Parmentier

This article considered at the importance of the Sun's zenithal passage to ancient Khmer culture.

The zenith is the highest point in the sky directly overhead wherever you are. The solar zenithal passage is the moment when the Sun passes through this highest point in the sky. Shadows are cast vertically at this moment and a stick stuck perpendicularly into the ground, called a *gnomon*, would cast no shadow at all.

Zenithal passage does not occur everywhere on Earth, it can only occur in the tropics. The tropics are defined by the latitude lines of the Tropics of Cancer and Capricorn, 23.5°N and 23.5°S respectively. The specific days of the Sun's zenithal passage vary with latitude. There are two zenithal passage days in the tropics becoming further apart as you move south from the 23.5°N tropical line (vice versa for the Southern Hemisphere). At the equator, the zenith passage happens on the same days as the equinox, March 21 and September 21, after a full 182 days. If you move north the first passage of the Sun through the zenith will occur later and the second earlier with a decrease in the interval between them. In the tropics 23.5 ° the passage of the Sun through the zenith will occur on the same day of the solstice.

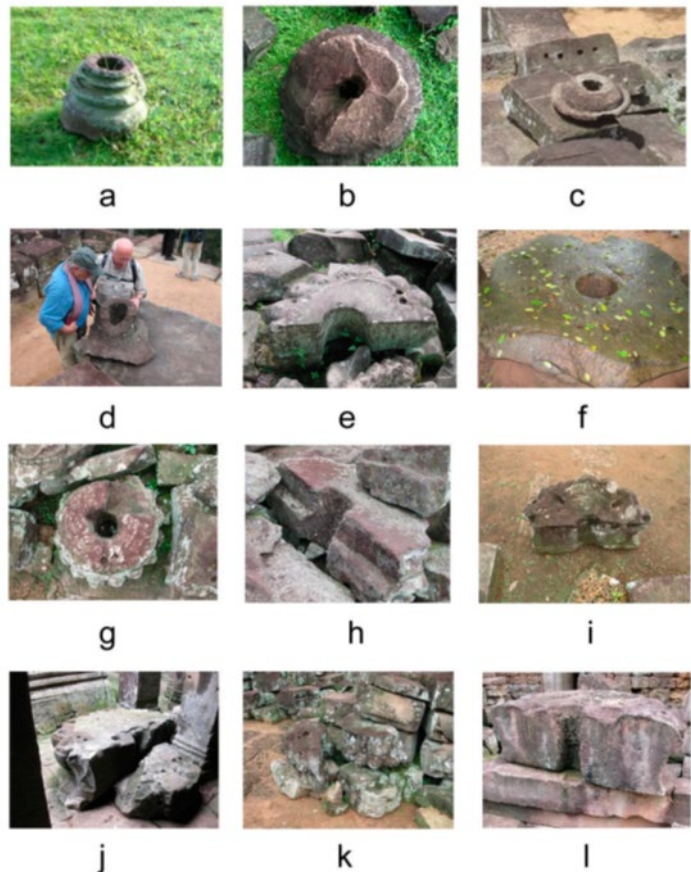


Fig. 44. Fallen capstone fragments from around Angkor. a and b. Angkor Wat, western forecourt; c. Pre Rup Terrace; d. Pre Rup Terrace with Hal Green and Wally Smith; e. Preah Khan; f. Beng Mealea, eastern side; g–l. Various sites within the Bayon. (Photo by Ed Barnhart)[14]

Zenith passages in Angkor occur on April 26 and August 17.

Another more demanding and accurate device for determining the location of the Sun at the zenith is a zenith tube. When the complete absence of a shadow from the gnomon can be difficult to determine, for example indoors, a straight vertical tube leading from the open sky into a dark room will create a powerful beam of light at the moment the Sun passes through the zenith.

Many of the hollow shikhara or vimana shaped towers of the Angkor temples are missing their capstones at the top revealing a hole at the top through which sunlight passes. The capstones are thought to have fallen as a result of erosion and weathering or to have been knocked down by looters looking for treasure.

Edwin Barnhart and Christopher Powell found these fallen capstones in the rubble around the temples. Most of these capstones were beautifully carved with lotus flowers and all had a hole along their axis. This very straight, long hole would have allowed sunlight to pass through only when the sun was at its true zenith. Functionally such a hole in the capstone makes every temple at Angkor with such a capstone a zenith tube.

The capstone of Angkor Wat turned up without its central hole after reconstruction

If supposed that the shaft was not built to store the jewels or ashes of Suryavarman II but served as an element of this temple as an instrument intended for its specific purpose, in this case water with oil poured on water or mercury instead of water with oil at the bottom of the shaft would form an absolutely horizontal mirror. A ray of sunlight passing through a hole in the capstone at the moment of passing the zenith would be absolutely vertical and reflecting from an absolutely horizontal mirror at the bottom of the shaft would return to meet itself. On the way down, as well as on the way up after reflection, the light could be subjected to modulation at the top of the capstone by focused "earthly" waves of the Schumann resonance concentrated at top of capstone or concentrated along the axis of the tower by the fractation of the shikhara tiers (p. 26) by cosmic energy or by sound waves of low-frequency chanting of mantras reflected from the walls. The light meeting exactly with itself could form a standing wave but due to the extremely small wavelength of light measured in hundreds of microns such a standing wave would be invisible to the human eye.

There are several reasons why light is chosen, in terms of analog radio transmission (which has already been done by using the term "modulation" above), as the "carrier frequency." One of them is mentioned by Krishna in the Bhagavad Gita [15]

7.8. I am the taste of water, O son of Kunti, I am the light of the sun and the moon, I am Pranava (the syllable OM) in all the Vedas, I am the sound in the ether, I am humanity in people;

10.21. Of the Adityas I am Vishnu, of the luminaries I am the effulgent Sun, of the Maruts I am Marichi; among the stars I am the Moon.

15.12. Know that the radiance of the sun, which illuminates the entire world, the light of the Moon and fire - this is My radiance.

Another reason may be hidden in the lifetime name of Suryavarman II - "Suryavarman" means "protected by Surya-god of the Sun."

From all of the above follows that here is taking place the unification of energies of three worlds: the subtle world, our world and the heavenly world. Om bhur bhuvah svaha – as the sacred mantra Gayatri ³⁰ begin.

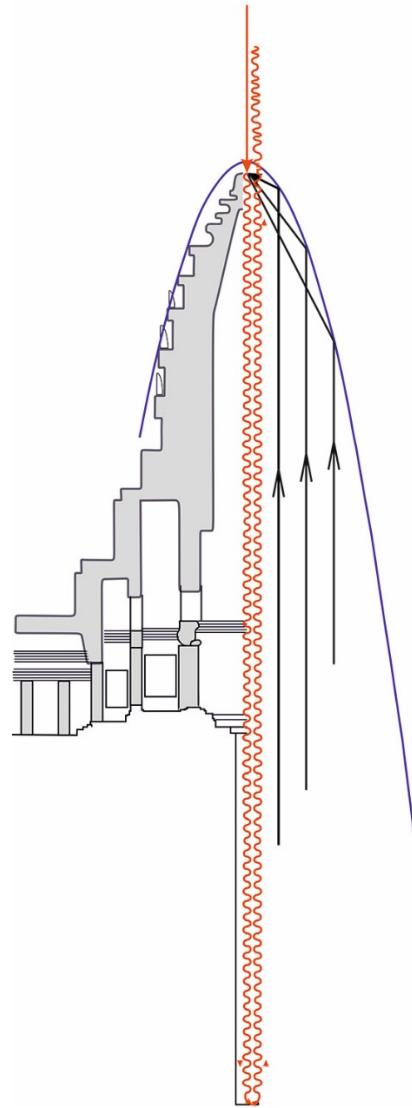


Fig. 45

³⁰ Gayatri- sacred mantra revealed to the world by Rama's guru – Vasishtha at last quarter of Treta yuga

ॐ भूर्भुवः स्वः
तत् सवितुर्वरेण्यं
भर्गो देवस्य धीमहि
धियो यो नः प्रचोदयात्

Om Bhur Bhuvah Svaha
Tat Savitur Varenyam
Bhargo Devasya Dheemahi
Dhiyo Yo Nah Prachodayaat (following next pg.)

17. The purposes of building Angkor Wat

Why was Angkor Wat built, what was the purpose of its construction?

Eleanor Mannika in her book "Angkor Wat_ Time, Space, and Kingship" [1] suggests and tries to prove that Suryavarman II tried to change the Kali yuga in which we are on the Krta or Treta yuga.

According to Eleanor Mannika

Suryavarman II encrypted the length of the yugas in the dimensions of Angkor Wat. Since our Kali yuga is the most unfavorable, the architect placed these spans 432 cubits (Kali yuga lasts 432,000 years) as far as possible from the central sanctuary outside the outer enclosure of the temple. Perhaps for protecting the aura of the temple from the negativity of the Kali yuga represented by the span of the bridge, the architects decided to block by bridge it with much better time periods and inserted the beginnings of the three remaining yuga periods at the beginning, middle and end of the bridge (Fig. 46): Krta yuga: from the first step up the bridge to the last one at the exit over the threshold of the second gallery facing the upper part of the temple (1725.89 cubits, Krta yuga 1.728.000 years), Treta yuga: from the center of the bridge to the gallery of historical bas-reliefs, but does not cross it (1292.02 cubits, Treta yuga 1.296.000 years), Dvapara Yuga: from the eastern end of the bridge, at the point where the first step towards the western entrance begins to the point where the naga balustrade around the central galleries of Angkor Wat crosses the causeway (864.83 cubits, Dvapara yuga 864.000 years). The golden era of the Krta yuga covers the whole of Angkor Wat passing through the second gallery and the upper level.

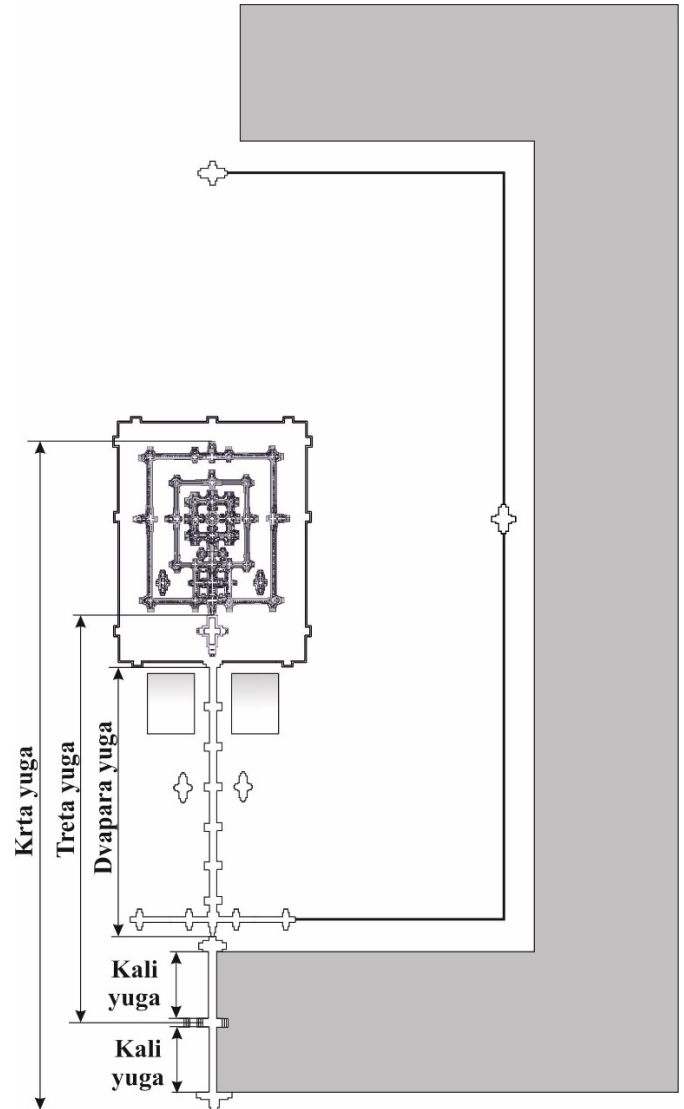


Fig. 46

Om - the expression of Brahman (see below) in sound, usually pronounced at the beginning of all mantras; **Bhur** - the Earthly or material world; **Bhuvah** - the subtle world; all-pervading energy; **Svaha** - the Heavenly plane of existence; **Tat** - That, the Supreme Reality, inexpressible in words; **Savitur** - from which all this is born and manifested; **Varenyam** - Worthy of worship; **Bhargo** - Radiance, Spiritual Light, **Devasya** - Divine Reality; **Dhimahi** - We meditate, contemplate; **Dhio** - spiritual intelligence; **Yo** - Which; **Nah** - Ours; **Prachodayat** - Enlighten; let it illuminate!

Brahman (Sanskrit: ब्रह्मन्;) one of the main concepts in Hinduism - is the all-pervading, infinite, impersonal, indivisible, eternal, indestructible Absolute, truth, consciousness, the source of everything material and immaterial, the supreme Reality of the universe, which is the cause of all changes. Brahman exists out of the mind and speech and has no name therefore it is called "Tat" - "That" and "Tat Sat" - "That who exists".

Not to be confused with varna (caste) - Brahman and the demigod Brahma.

Eleanor Mannika supposed that the bisection of the bridge and the superposition of the inauspicious Kali yuga on the perfect Krta Yuga is because a perfect king can destroy the Kali yuga and establish the Krta yuga when he comes to power during his Indrabhishekam (inauguration as king). If the king is not so good the era can change to Treta yuga. An even less good king could change the era to Dvapara yuga, citing a quote from the Mahabharata *when the king is perfect and completely carries out strict governance of the state then the best of eras, the Krta yuga, begins. There was a state that time is the cause of the king or the king is the cause of time: the king is the cause of times (yugas) and king is the creator of the Krta yuga*³¹. This assumption was based on the Khmer engraved inscription: *this king, with the brilliance of fire, began the krta yuga ---- Under the rule of this king, who proclaimed the krta yuga and threw out the evil of the kali yuga ---- This king ... through his policy realized the conditions of the krta era.* from sources³²

However, it is necessary to remember that Suryavarman II was a Vaishnava and for a Vaishnava the main goal of life is to get out of the circle of samsara - rebirths and stand next to the Supreme Personality of Godhead. It can be said with a high degree of certainty that Angkor Wat was not built as a burial temple because for a Vaishnava the body after death has no meaning, and even less a temple as a repository of remains, but a temple for the transition to another state at the time of death. Krishna in the Bhagavad Gita speaks of such a transition as follows:

BG 8.23 Now I shall tell you, O best of the Bharatas, about the time when the yogis go and do not return, and about the time when they go and return.

8.24. Those who have known the Supreme go to the Supreme, leaving the body during the influence of fire, light, day, the bright half of the month, the six months of the sun's movement to the north.

8.25. The mystic who has left the world in the fog, at night, during the fortnight of the waning moon, the six months of the sun's movement to the south, reaches the shining lunar sphere and returns again.

It is quite possible that the sunlight at the moment of the zenith passage of the Sun, modulated by the earthly waves of the Schumann resonance and the cosmic energy concentrated along the axis of the tower by the fractionation of the shikhara tiers, was supposed to help Suryavarman II and perhaps Divakara, to exit samsara and reach God. Such light would have combined heavenly, earthly and cosmic energies.

It is also possible that the sunlight passing through the hole in the keystone reaching the reflective surface at the bottom of the shaft in the form of oil poured onto water, was modulated by the sound of the prayer reflected from the walls of the tower and concentrated along the axis of the tower, as well as repeated modulation after reflection from the mirror surface at the bottom of the shaft and movement upward back through the hole in the capstone. At the time of Suryavarman II the water must have been at the bottom of the shaft, because at that time the groundwater level must have been higher since the Eastern and West barais were full of water that would make impossible to store the jewels and ashes of Suryavarman II in the shaft.

³¹ Van Buitenen, trans. and ed., *The Mahabharata, Book 4, The Book of Virata; Book 5, The Book of the Effort*, vol. 2 (Chicago and London: University of Chicago Press, 1978), pp. 5-54, *The Coming of the Lord*, con't., p. 430, 130.15—20.,

³² -Coedes, J.C, vol. 4, various pages.

-Starting at p. 23, st. 8, the inscription is from Sambor Prei Kuk, group N, outer enclosure, east door, south jamb; p. 227, st. 77, Prasat Srung stele inscription, side C, from the south-west corner of Angkor Thom, and in vol. 5, p. 322, st. 14, Wat Sla Ku stele inscription, side B.

- Other inscriptions describing the Khmer ruler as the initiator of the Krita Yuga or the culminator of the Kali Yuga can be found in the following engraved inscriptions. du Cant bodge: vol. 2, p. 174, st. 16, Phimeanakas; vol. 3, p. 82, st. 4, Kok Samrong; vol. 4, p. 11, st. 14, Sambor Prei Kuk; vol. 7, p. 181, st. 4, Prasat Beng stele; and Louis Finot, "Inscriptions d'Angkor," BEFEO 25/3-4 (1926): 402, st. 6, Mangalartha:

Despite the fact that Angkor Wat was a Vishnuite temple such reflected modulated sunlight during the zenith passage could be used by Suryavarman II to attract his *ishta-devata* – chosen deity - Surya - the god of the Sun.

There is evidence [20] that Suryavarman II planned to complete the construction of Angkor Wat in 2 years but on April 11, 1128 took place probably the most significant parade of planets ³³in recorded history .

There are small parades of planets when four planets gather together and a large (or great) parade of planets - when five planets gather. On April 11, 1128, all 8 planets, including the Moon, gathered in a sector of 40 degrees. How significant and rare this event is can be estimated from the table of planetary parades in which 8 planets converged and the heliocentric sector they fell.

Note: the author of this article was unable to verify this parade on the Stellarium 24.4 program. The planets did not converge in the 40 degree sector but all the planets with the Moon were in the sky at certain time period.

It is impossible to even imagine that Divakarapandita did not know about this planetary parade and if there was a plan to finish Angkor Wat in 2 years and its construction began no later than 1122, then the temple was planned to be finished by this planetary parade during which it was probably believed there would be a special increase in certain energies which concentrated by Angkor Wat would allow to do that impossible at other times to be done. It should also be noted that this day was before the solar solstice, so the sun was moving north and on this day the waxing phase of the moon was 9 days old, i.e. all favorable astronomical conditions were met according to BG8.24.

In conclusion of this section, we can cite a quote from the Agni Purana, according that the builder of the temple in any case get a huge preferences :

38.8. He who builds one temple goes to heaven. He who builds three temples goes to the world of Brahma. The builder of five abodes reaches the world of Sambhu (Shiva). Having built eight abodes, a person remains in the world of Hari.

38.9-17. He who builds sixteen abodes obtains enjoyment and liberation. By building a small, medium or excellent temple for Hari, one obtains respectively heaven or the world of Vishnu or liberation. Agni Purana 38 [3].

Year	Date	Minimum sector angle (deg.)
117	29 November	74
408	23 October	90
410	22 September	87
449	22 January	57
626	11 February	84
628	23 January	65
768	17 November	86
949	01 February	80
987	28 June	66
989	08 June	76
1126	09 May	83
1128	11 April	40
1130	18 March	84
1166	31 August	72
1307	14 April	46
1666	19 September	85
1817	09 June	83
1982	10 March	95
2161	19 May	69

Table 2. Planetary Parades.

³³ The parade of planets is not an astronomical concept but rather an astrological one. The planets do not line up, this only happens in the movies. Recently computer modeling has calculated when the planets will line up - this will happen in 13.4 trillion years but by that time the Sun will have already turned into a white dwarf. The rest of the time, during a parade of planets, the planets gather on one side of the Sun in a certain sector of the sky.

18. Conclusion

Once again referring to the posthumous name of Suryavarman II - Paramavishnuloka, the first part of the name Paramaa - in Sanskrit paramaa परमः - means supreme. The meaning of this prefix can be judged by the words Paramatmaa - Supreme soul or Parameshvara - Supreme Lord, Vishnu and loka - in Sanskrit लोकः - world, planet.

The posthumous name itself says that Suryavarman II was going to break the chain of reincarnations after death and stand next to Vishnu - the goal of a Vaishnava, who he was, like his ancestors.

Summarizing all the data, we can assume that with the greatest degree of probability the purpose of building Angkor Wat was to help Suryavarman II and, perhaps, Divakarapandit to exit the chain of reincarnations and achieve samadhi.

As an intermediate goal, it can be assumed that Suryavarman II, as indicated in his posthumous name, tried to create a world, a place of residence for the avatar of the supreme lord - Vishnu.

After Suryavarman II built Mount Meru, he had to create a world on it, an abode for Vishnu, as Brahma did.

Most likely, the entire complex with three enclosures with towers at their corners with the central tower of the sanctuary work as a single instrument, but this requires further research.

19. Abbreviations

AP- Agni Purana

BG – Bhagavad Gita

GP – Garuda Purana

LP – Linga Purana

SB – Shrimad Bhagavatam or Bhagavad Purana

SS - Samaranganasutradhara.

20. Bibliography

1. Eleanor Mannikka. Angkor Wat_ Time, Space, and Kingship (1996)
2. The Hindu Temple Vol I 1946 Stella Kramrisch
3. The Agni-Purana Motilal Bandarsidass Publishers Private Limited. First Edition: Delhi, 1954 Reprint: Delhi, 1998
4. The Garuda-Purana Motilal Bandarsidass Publishers Private Limited. First Edition: Delhi, 1957 Reprint: Delhi. 1990, /995, 2002
5. The Bhagavata-Purana Motilal Bandarsidass Publishers Private Limited. First Edition: Delhi, 1950 Reprint: Delhi, 1979, 1986, 1992, 1999
6. The Linga-Purana. Motilal Bandarsidass Publishers Private Limited. First Edition: Delhi, 1951 Reprinted Delhi, 1982. /990
7. Артур Авалон. Маханирвана-тантра. — Пер. с англ. — М.: Сфера, 2003.
8. "THE SACRED ROOKS OF THE EAST" TRANSLATED BY VARIOUS ORIENTAL SCHOLARS AND EDITED BY F. MAX MULLER VOL. XII. "THE SATAPATHA-BRAHMANA" ACCORDING TO THE TEXT OF THE mAdhyandina school TRANSLATED BY JULIUS EGGELING PART I BOOKS I AND II. OXFORD AT THE CLARENDON PRESS 1882
9. Неаполитанский С. М., Матвеев С. А. Энциклопедия янтр. — СПб.: Институт метафизики, 2010. — 608 с.,
10. Brahma-Vaivarta Puranam. Ganesa and Krisna Janma Khanas. Translated Bvrajendra Nath Sen, M.A., LL.B. Published by Sudhindra Nath Vasu, at the Panini Office, Bahadurganj, Allahabad. 1922.
11. Iasef Md Riana, Jin-Ho Parka., Hyung Uk Ahna, Dongkuk Changb «Fractal geometry as the synthesis of Hindu cosmology in Kandariya Mahadev temple, Khajuraho», Department of Architecture, Inha University, Chosun University, South Korea, 2007
12. Madhu Khanna "Yantra. The tantric symbol of cosmic unity" Thames&Hudson
13. Measurement and Proportion in Indian Temple Architecture PROFESSOR MICHAEL W. MEISTER
14. "The Importance of Zenith Passage at Angkor, Cambodia" By Edwin Barnhart and Christopher Powell
15. Bhagavad Gita in the Neapolitansky translation https://scriptures.ru/bh_gita.htm
16. <https://hiddenarchitecture.net/angkor-wat-temple/>
17. Glaize, M. 1944. Les monuments du groupe d'Angkor. Saigon: Portail.
18. https://ru.wikipedia.org/wiki/Резонанс_Шумана
19. https://en.wikipedia.org/wiki/Pallava_dynasty
20. Dr. Ujjwala Palsuley «Manifestation of Indian philosophy of temple architecture in Cambodia-A case of Angkor Wat, Siem Reap»
21. Michael D. Coe "Angkor and the Khmer Civilization" 2003

21. About the author

Abramov Alexander,
engineer, independent researcher
angkor.cc@gmail.com
sawadeekrap.ru